AUA 2022

1. A 65-year-old man in urinary retention has post-obstructive diuresis after catheterization and is managed with appropriate fluid replacement. Three days later, urine output normalizes, but serum creatinine and BUN are unchanged at 6.8 mg/dL and 95 mg/dL, respectively. The next step is:

A. observation.
B. increased fluid replacement.
C. renal ultrasound.
D. retrograde pyelography.
E. dialysis.
ANSWER=C

In patients with urinary obstruction and impaired renal function, post-obstructive diuresis is not unusual. Typically, urinary catheter drainage produces improvement in the blood levels of creatinine, BUN, and electrolytes to normal levels. If significant improvement does not occur, consideration must be given to inadequate drainage of the upper urinary tract because the bladder is poorly drained (poorly functioning catheter) or because of supravesical obstruction. The latter should be evaluated using renal ultrasound which is less invasive than retrograde pyelography. Since creatinine and BUN have not improved, continued observation is inappropriate until upper tract obstruction is ruled out. No data is provided to suggest the need for immediate dialysis. There is no evidence the patient is dehydrated; therefore, increased fluid replacement is not indicated.

2. The vascular supply of an omental wrap is based on the:

A. superior mesenteric artery.
B. gastroduodenal artery.
C. right gastroepiploic artery.
D. short gastric artery.
E. inferior mesenteric artery.
ANSWER=C

The blood supply of the omentum arises from the gastroepiploic arteries. The superior mesenteric, gastroduodenal, short gastric, and inferior mesenteric arteries do not directly supply the omentum and should not be mobilized for omental wraps.

3. A 46-year-old man with a high velocity GSW to the right lower abdomen has a normal urinalysis. During laparotomy, a small bowel perforation and right iliac vein injury are repaired. Intraoperative IVP reveals prompt bilateral excretion of contrast with no extravasation. The next step is:

A. no further evaluation.
B. ureteral inspection.
C. IV fluorescein.
D. bladder filling with methylene blue.
E. retrograde ureteropyelography.
ANSWER=B

The frequency of ureteral injuries from penetrating trauma is low. Given this location, however, there is a high likelihood of ureteral injury, regardless of the appearance of the IVP. These injuries may be difficult to detect because the IVP is either normal or indeterminate in approximately 70% and hematuria may be absent in up to 45%. Retrograde ureteropyelography or injection of dyes (i.e., I.V. fluorescein) may miss such injuries because the blast injury often results in delayed sloughing. Without gross hematuria, a bladder injury is unlikely, and therefore intravesical methylene blue is unnecessary. A high index of suspicion is necessary for diagnosis of a ureteral injury and the most accurate method is ureteral inspection. Given the vein repair, the area of interest is exposed, and inspection should not be difficult.

4. A 58-year-old man has frequency and nocturia, an AUA Symptom Score of 22, peak urinary flow rate of 8 mL/sec, and PVR of 200 mL. His prostate is 70 grams with a prominent median lobe. Sitting systolic blood pressure is 140 mmHg. An orthostatic blood pressure change of 25 mmHg is not associated with postural symptoms. He is concerned about developing ejaculatory dysfunction. The best treatment is:

A. finasteride.
B. alfuzosin.
C. TUIP.
D. transurethral vaporization of the prostate.
E. UroLift®.
ANSWER=B

Orthostatic hypotension is not a contraindication for alpha blockers providing the blood pressure change is not associated with postural symptoms. Alpha-blockers, such as alfuzosin, are the first-line treatment for men with BPH/LUTS and their effectiveness is independent of prostate size. Alfuzosin has the lowest rate of ejaculatory dysfunction (< 1%) of all the medicines in this class. Finasteride will decrease semen volume and will take several months to take effect. While the rate of retrograde ejaculation with TUIP is low, it still has an approximately 11% rate of ejaculatory dysfunction. Transurethral vaporization of the prostate has a high rate of retrograde ejaculation, similar to TURP. If this man fails to improve on alfuzosin, UroLift® might be an option. However, while UroLift® does not cause retrograde ejaculation, it is not currently recommended for patients with enlarged median lobes. Rezum® is an option for this patient should he fail medical therapy or choose not to undergo a trial of medical therapy.

5. Two months following closure of a traumatic bladder rupture associated with a pelvic fracture, a 20-year-old man is now voiding but has persistent leakage through his prior suprapubic tube site. The next step is:

A. CT urogram.
B. pelvic MRI scan.
C. fistulogram.
D. cystourethroscopy.
UDS.
ANSWER=D

When faced with a patient with a persistent urinary fistula, the acronym FETID will aid the physician in determining its etiology and management plans: F- Foreign Body, E- Epithelization of the fistula tract, T- Tumor or chronic trauma causing persistence, I- Infection, or chronic inflammation arising from inflammatory bowel disease, XRT, etc., D- Distal obstruction. In this young patient with a history of persistent fistula following closure of a bladder rupture after a pelvic fracture, persistent drainage from a suprapubic tube site is most likely from either a foreign body within the bladder (i.e., bony spicule or bladder calculi formed as a nidus from the prior indwelling suprapubic tube) or bladder outlet obstruction arising from either a bladder neck contracture or urethral stricture. The single best diagnostic study is cystourethroscopy. Pressure flow UDS could demonstrate findings consistent with high-pressure voiding and outlet obstruction. But the source of the obstruction, which is likely a urethral stricture or a bladder neck contracture, would not be able to be determined by this test and this test does not rule-out the possibility of a foreign body within the bladder. A CT scan may allow one to visualize either a foreign body (bone or hardware) or bladder calculi but would not be able to assess the urinary outlet. Similarly, a fistulogram or pelvic MRI scan are unlikely to yield adequate diagnostic information in this situation to result in definitive operative plans.

6. 69-year-old woman with hypertension and palpitations has elevated plasma free metanephrines. CT scan is shown. In addition to blood pressure control, the next step is:

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A. gallium-68 dotatate PET scan.
B. adrenal venous sampling.
C. iodine-131-MIBG.

D. mitotane.
E. cisplatin and etoposide.
ANSWER=A
The patient has a clinical presentation, radiographic features, and laboratory studies consistent with a paraganglioma. Initial management should involve alpha-blockade to establish blood pressure control. Staging evaluation for metastases in this setting is recommended, with gallium-68 dotatate PET having emerged as the preferred imaging modality. Dotatate has a high affinity for the somatostatin surface receptor, which is expressed by paragangliomas, and thereby facilitates detection of metastatic disease which may in turn impact management. lodine-131-MIBG represents a form of systemic therapy that may be utilized for patients with metastatic disease or locally unresectable tumors in whom a prior MIBG scan has been obtained and is positive. Meanwhile, adrenal vein sampling has been reported to have a sensitivity of 95% and a specificity of 100% for detecting lateralized autonomous aldosterone secretion but would not be indicated in the evaluation of a patient with a likely retroperitoneal paraganglioma. Both cisplatin and etoposide as well as mitotane are systemic therapy options for patients with metastatic adrenocortical carcinoma (with cisplatin/etoposide preferred) but would not be indicated here in a functional paraganglioma and without documented metastatic disease.

7. A five-year-old boy has day and night wetting, constipation, and fecal soiling. Physical examination is normal except for a high-arched right foot. UDS shows detrusor overactivity and normal sphincter function. PVR is 5 mL. The next step is:
A. CIC.
B. timed voiding schedule.
C. spinal MRI scan.
D. antimuscarinics.
E. bowel program.
ANSWER=C
The patient has the urologic finding of incontinence combined with fecal soiling and a high-arched foot abnormality. A foot abnormality, such as a high-arched foot or abnormal gait, can signify a tethered cord. A tethered cord due to occult spinal dysraphism needs to be ruled out as the cause of his incontinence. Tethered cord syndrome is a stretch-induced functional disorder of the spinal cord with the most caudal part of the cord anchored by inelastic structures. Specific treatment of his detrusor overactivity with timed voids, medication, and/or treatment of constipation is appropriate after a neurologic cause is excluded. CIC would not be needed without evidence of urinary retention.

8. A 70-year-old woman has intermittent large volume urinary incontinence. Her medical history is significant for a hysterectomy 20 years ago. Urinalysis is normal and PVR is 40 mL. During the CMG, there is no incontinence demonstrated during filling and stress maneuvers, and the end fill pressure is 6 cm H20 at 300 mL. The most likely cause of her incontinence is:
A. overflow.
B. detrusor overactivity.
C. decreased detrusor compliance.
D. intrinsic sphincter deficiency.
E. VVF.
ANSWER=B
This patient likely has urgency urinary incontinence secondary to detrusor overactivity, as indicated by the random nature of the incontinence. UDS will fail to demonstrate involuntary bladder contractions in approximately 50% of patients with clinical urgency urinary incontinence. SUI occurs during increased abdominal pressure, and she is not describing leakage during these types of events such as coughing, lifting, and exercise. In addition, SUI, including intrinsic sphincter deficiency, is not demonstrated on UDS since urinary leakage did not occur during Valsalva maneuvers. The characteristics of the incontinence are not consistent with a VVF as the urinary leakage is not continuous. She has a normal detrusor pressure at the end of filling, confirming normal compliance (300 mL/6 cm H20=50 mL/cm H20). Her PVR of 40 mL demonstrates that she is not in urinary retention and thus rules out overflow incontinence.

9. The manifestation of the VHL syndrome that tends to cluster within a subset of affected families is:
A. RCC.
B. pheochromocytoma.
C. retinal angioma.
D. cerebellar hemangioblastoma.
E. epididymal papillary cystadenoma.
ANSWER=B
Penetrance for all of the manifestations of VHL is incomplete. In particular, pheochromocytomas have been found to cluster only in certain families with VHL, primarily those with a missense mutation of the VHL gene. A careful family history and thorough review of preoperative CT scans for potential associated tumors are important in all patients with familial RCC. Indeed, pheochromocytomas are a critical entity to recognize prior to any surgical intervention, given the potential perioperative morbidity of an unrecognized pheochromocytoma. The other listed manifestations of VHL are not as well-characterized by familial clustering.

10. A 37-year-old woman with a continent cutaneous urinary diversion becomes febrile and develops mental status changes and marked hepatic dysfunction. Previously, her hepatic function had been normal. In addition to prompt urinary drainage and systemic antibiotics, the next step is:
A. lactulose.
B. Vitamin B12.
C. sodium bicarbonate.
D. nicotinic acid.
E. thiamine and folic acid.
ANSWER=A
Urinary ammonium excreted by the kidneys is reabsorbed by the intestinal segment and then returned to the liver via the portal circulation. The liver metabolizes ammonium to urea via the ornithine cycle. The liver usually adapts to the excess ammonia in the portal circulation without difficulty and rapidly metabolizes the urea. In the setting of hepatic dysfunction, the hepatic reserve for ammonium metabolism may be exceeded, resulting in the complication of an ammoniagenic coma. The syndrome, however, also has been described in patients with normal hepatic function. Systemic bacteremia, with endotoxin production, inhibits hepatic function and may precipitate this clinical entity. UTIs with urea-splitting organisms may also overload the ability of the liver to clear the ammonia. If this syndrome occurs in a patient suspected of having near-normal hepatic function, systemic bacteremia or urinary obstruction should be suspected. Prompt urinary drainage with treatment of the offending urinary pathogens along with systemic antibiotics and the administration of oral neomycin or lactulose to reduce the absorption of ammonia in the gastrointestinal tract are the key components to patient management. There is no indication for the use of Vitamin B12, sodium bicarbonate, nicotinic acid, thiamine, and folic acid in this clinical setting.

11. A 67-year-old man has an IPSS of 25 and a bother score of 5. He has no history of urinary retention, infections or stones, and has normal renal function. DRE reveals a 25 gram benign prostate. The next step is:
A. observation.
B. alpha-blocker.
C. 5-alpha-reductase inhibitor.
D. alpha-blocker and 5-alpha-reductase inhibitor.
E. UroLift®.
ANSWER=B

This patient has a high IPSS with a significant bother score, therefore watchful waiting is not appropriate, and he should be offered intervention. A VA study of 1229 patients randomized to placebo, alpha-blocker therapy, finasteride, or combination therapy with alpha-blockers plus finasteride showed the superiority of alpha-blocker therapy alone in improvement of symptoms and peak flow rate. Other than an additional reduction in prostate volume, combination therapy with finasteride did not provide significantly more symptom relief. Combination therapy may be beneficial in a man with an enlarged prostate; however, there is no indication that the prostate is enlarged in this individual, and therefore, the initial cost and potential adverse effects of combination therapy are not justified in this untreated patient. Medical therapy of prostatic symptoms has shown a reduction in BPH progression with combination therapy, though this question focuses on symptomatic relief in a patient without significant prostatic enlargement, which would be best achieved by alpha-blockade alone. This patient has no absolute indication for surgical therapy such as UroLift® although it may be considered if the patient chooses not to undergo medical therapy.

12. During laparoscopic left radical nephrectomy, minimal placement of clips on the primary branches of the main renal vein is most important to facilitate:
A. lymphadenectomy.
B. en bloc excision with negative margins.
C. adrenalectomy.
D. application of the endovascular stapler onto the main renal vein.
E. dissection and occlusion of the main renal artery(ies).
ANSWER=D
Excessive placement of clips when managing the gonadal, adrenal, or lumbar branches of the left renal vein can severely restrict the working space available for safe placement of the endovascular stapler later in the case when the main renal vein is to be addressed. Application of the stapler across a clip can lead to stapler misfire and subsequent hemorrhage and should therefore be avoided. Use of clips is not likely to significantly impact the ability to perform the lymphadenectomy, adrenalectomy, the ability to achieve negative margins, or the ability to control the renal artery.

13. A 48-year-old man undergoes partial nephrectomy for a 3 cm renal mass. His flank drain is removed on the third postoperative day. Seven days later, he has clear fluid dripping from the flank drain site. He is otherwise asymptomatic. CT scan demonstrates a 5 cm by 10 cm fluid collection adjacent to the kidney with extravasation of contrast from the collecting system. The next step is:
A. observation.
B. urethral catheter.
C. percutaneous drainage of urinoma.
D. PCNT.
E. ureteral stent.
ANSWER=C
Urine leak following partial nephrectomy occurs in up to 15% of cases. If a postoperative drain is left in situ, spontaneous closure of the urinary leak usually occurs within two to four weeks. In the case of an unrecognized or delayed urinary leak, the presence of an adjacent urinoma may prevent fistula closure and predispose the patient to infection/abscess formation. Percutaneous drainage of the urinoma is the preferred method used to control a delayed pyelocutaneous fistula. If the leak does not heal with drainage of the urinoma, consideration should be given to the possibility of either ureteral/bladder obstruction or bladder dysfunction as a cause of the persistent fistula. In these situations, a cystoscopy with a retrograde pyelogram followed by ureteral stent and urethral catheter placement should be pursued. The concomitant urethral catheter is used to aid healing by preventing high pressure reflux up the ureteral stent and/or to treat bladder outlet obstruction or voiding dysfunction as an etiology for the persistent urinary fistula or urinary leak. PCNT would be considered if a ureteral stent could not be placed.

14. A 23-year-old addict is treated with I.V. antibiotics and percutaneous drainage for a renal abscess. Forty-eight hours after admission, he continues to have high fever and is found injecting himself with heroin. He physically assaults a security guard and now demands to be discharged against medical advice. The next step is:
A. discharge from the hospital on oral antibiotic therapy.
B. allow discharge against medical advice.
C. sedation, physical restraint, and continue treatment.
D. transfer to a chemical dependency unit.
E. notify legal authorities and continue treatment.
ANSWER=E
The continued use of I.V. street drugs while under treatment directly affects the likelihood of medical success. His abusive and illegal behavior could stem from his underlying social pathology or could indicate alterations in mental capacity from additional infected cerebral sites. The use of street drugs coupled with an assault on the hospital staff should result in turning this patient over to legal authorities, who can mandate and supervise additional diagnosis and treatment. This will provide security for the treating staff and protection of the patient from his own actions.

15. A 72-year-old man is noted to have a large bladder on a CT scan performed for colonic diverticular disease. He has no LUTS. His prostate is 30 grams and benign. PVR is 350 mL. Urinalysis is negative. The next step is:
A. observation.
B. alpha-blocker.
C. 5-alpha-reductase inhibitor.
D. 5-alpha-reductase inhibitor and an alpha-blocker.
E. Rezum®.
ANSWER=A
PVR measurement has significant intra-individual variability and does not correlate well with other signs or symptoms of lower urinary tract dysfunction. The VA Cooperative Study Group (which evaluated men with bothersome LUTS secondary to bladder outlet obstruction) demonstrated that PVR does not predict the outcome of surgery and the majority of men with large residual urine volume did not require surgery during the duration of the trial. Men with significant PVRs should be monitored more closely if they elect no therapy. This man would be considered to have low risk chronic urinary retention (PVR > 300 mL) because he has no signs or symptoms of upper tract deterioration or UTIs. Medical therapy for BPH is indicated in men who have bothersome symptoms that negatively affect their quality of life. First-line medical therapies include alpha-blockers, 5-alpha-reductase inhibitors, or a combination of the two. Minimally invasive or surgical therapy, such as Rezum®, is not indicated in men without bothersome symptoms.

16. One hundred patients undergo abdominal imaging for staging prior to RPLND. Retroperitoneal metastatic disease is confirmed in 50 patients at surgery. With imaging, there were 20 false positives and 10 false negatives. The sensitivity of the imaging is:
A. 50%
B. 60%.
C. 67%.
D. 75%.
E. 80%.
ANSWER=E
A test with high sensitivity (good for screening) reliably finds a disease when it is present and avoids false negatives. A test with high specificity (good for confirmation) reliably excludes a disease when it is absent and avoids false positives. Positive

predictive value is the probability a person has disease if test result is positive. Negative predictive value is the probability a person does not have the disease if the test result is negative. The test result can be true positive (TP), true negative (TN), false positive (FP), or false negative (FN). The number with disease = TP + FN = 50. FN = 10; therefore, TP = 40. The number without disease = FP + TN = 50. FP = 20; therefore, TN = 30. The prevalence of disease in this study is 50%. Sensitivity = TP/(TP + FN) = 40/(40 + 10) = 80%. Specificity = TN/(FP + TN) = 30/(20 + 30) = 60%. Positive predictive value = TP/(TP + FP) = 40/(40 + 20) = 67%. Negative predictive value = TN/(FN + TN) = 30/(10 + 30) = 75%.

17. A 52-year-old man with erectile dysfunction undergoes videourodynamics for voiding dysfunction. A video-urodynamic image, taken early in filling (at the point indicated by dotted line in the UDS tracing), is shown. The videourodynamics suggests a diagnosis of:

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A. bladder neck dyssynergia.
B. cervical spinal stenosis.
C. Parkinson's disease.
D. multiple system atrophy (Shy-Drager Syndrome).
E. multiple sclerosis (MS).
ANSWER=D
The cystogram demonstrates an open bladder neck at rest. The UDS tracing shows that there was no detrusor activity at the instant the image was obtained. An open bladder neck at rest in a male is highly suggestive of multiple system atrophy (MSA formerly known as Shy Drager Syndrome) in the absence of prior prostate surgery. Although other neurological diseases may result in an open bladder neck at rest, none of these are listed except MSA. Erectile dysfunction is often found in MSA, and this finding in concert with the open bladder neck at rest distinguishes this condition from Parkinson's disease (PD) which is often clinically similar in many other respects. Other symptoms of MSA may include other autonomic dysfunctions. Bladder neck dyssynergy would have a closed bladder neck with filling. Cervical spinal stenosis and MS would not typically have an open bladder neck at rest. A further distinction between PD and MSA is that bladder symptoms occur earlier in the course of MSA compared to PD patients.

18. A 28-year-old man has acute scrotal pain. Ultrasound reveals testicular torsion. The consulting urologist is unavailable and asks that pain medication be withheld until surgical consent can be obtained in one hour. The ER physician should:
A. withhold pain medication.
B. administer appropriate analgesics.
C. transfer to nearest hospital.
D. obtain consent for surgery.
E. give pain medication and obtain consent from a relative.
ANSWER=B
The patient should receive appropriate analgesics, and surgical consent should be obtained only by a member of the surgical team. This surgeon has the common misconception that informed consent is somehow invalidated by the presence of specific medications. Patients who present for surgery may have taken a variety of medications, many of which can have effects on mental function. The issue is not whether the patient has been premedicated, but whether premedication has impaired the patient's ability to participate in the informed consent process. While it is appropriate to give pain medication, it is not appropriate to obtain consent from another party if the patient still has decision-making capacity. The ethical issues involved in this case include assessment of the patient's capacity to make decisions and whether the patient is deliberately or otherwise being coerced into consenting for surgery. The patient's capacity to provide consent is determined not by what recent medications have been given but by whether the patient understands the need for treatment, can listen to and understand treatment options and risks, and can then express a choice regarding their care. Respect for patient autonomy requires that we promote a patient's ability to make an "unencumbered" choice. Severe pain, by impairing a patient's ability to listen and understand, is an encumbrance to the informed consent process. Further, withholding pain medication for the purpose of obtaining consent might be coercive.

19. A 47-year-old woman has SUI and a urethral diverticulum. UDS demonstrates a Valsalva LPP of 50 cm H20. The best treatment is urethral diverticulectomy and:
A. staged urethral bulking if SUI persists.
B. Martius fat pad.
C. pubovaginal sling.
D. midurethral sling.
E. Burch colposuspension.
ANSWER=C
A concomitant incontinence procedure should be considered given her SUI symptoms and demonstration of loss of urine with Valsalva on UDS. A pubovaginal fascial sling would treat the SUI without increased risk of urethral erosion. Concomitant placement of a synthetic midurethral sling should be avoided because of the potential risk of infection and erosion into the urinary tract and according to AUA Guidelines is not recommended at the time of urethral diverticulectomy. A Martius fat pad will not treat the incontinence. Her intrinsic sphincter deficiency, as suggested by the Valsalva LPP is better treated with a sling rather than a Burch procedure.

20. A 55-year-old man with erectile dysfunction has a 60 degree ventral curvature of his penis of 18 months duration. On duplex Doppler ultrasound, his peak systolic velocities are 40 cm/sec; end diastolic velocities are 10 cm/sec bilaterally. The next step is:
A. intralesional verapamil.
B. shockwave therapy.
C. penile plication.
D. plaque incision and grafting.
E. placement of a penile implant.
ANSWER=E
The patient has stable curvature precluding him from having sexual intercourse. His hemodynamic assessment indicates normal arterial inflows (peak systolic velocities > 30 cm/sec). However, there is evidence of veno-occlusive dysfunction (end diastolic velocities > 5 cm/sec). Intralesional injection therapy has not been shown to render men with this severity of curvature functional. Shock wave therapy is only indicated for pain related to Peyronie's disease. Plication surgery will result in significant loss of penile length because of the degree of curvature and will not address the erectile dysfunction due to venous leakage. According to the AUA Guidelines on Peyronie's disease, clinicians may offer plaque incision or excision and/or grafting to patients with deformities whose rigidity is adequate for coitus (with or without pharmacotherapy and/or vacuum device therapy) to improve penile curvature. In men with this preoperative hemodynamic profile and erectile dysfunction, the procedure will not improve his erectile dysfunction and will render him incapable of having intercourse even with a straight penis. Penile implant surgery is indicated in men with this degree of curvature and erectile function.

21. An asymptomatic five-year-old boy has gross hematuria two hours after wrestling with his younger brother. Physical examination is normal. The next step is:
A. observation.
B. serial examinations and hematocrit determination.
C. ultrasound of bladder and kidneys.

D. CT scan.
E. cystoscopy.
ANSWER=C
It is recognized that underlying genitourinary malformations or other pathologies are at least three-fold more common in pediatric patients relative to adults undergoing evaluation for trauma. This is a classic case for raising the concern of an underlying abnormality since the gross hematuria seems out of proportion with the low severity of the trauma. The underlying problems may include hydronephrosis, multicystic kidney, Wilms' tumor, and various renal fusion anomalies. Therefore, it is appropriate to image with ultrasound to look for such potentially significant problems. A patient should not be considered for admission with serial examinations and hematocrit determination unless there is a documented substantial renal injury. Cystoscopy is not indicated in the initial evaluation of gross hematuria in children. CT scan would only be indicated if there is significant injury or abnormality on ultrasound or if the mechanism of injury was more concerning.

22. A 32-year-old woman with severe pyelonephritis is receiving ampicillin combined with a single daily dose of gentamicin, 7 mg/kg. After 36 hours, she remains febrile and has persistent flank pain. Following the second dose, a trough serum gentamicin level is 12 mcg/mL (normal is 5-10 mcg/mL). The next step is:
A. continue current gentamicin regimen.
B. continue gentamicin and start n-acetylcysteine.
C. decrease gentamicin dose.
D. decrease gentamicin frequency.
E. discontinue gentamicin and start aztreonam.
ANSWER=D
When combined with trimethoprim/sulfamethoxazole (TMP-SMX) or ampicillin, aminoglycosides are the first drugs of choice for febrile UTIs. Their nephrotoxicity and ototoxicity are well recognized; hence, careful monitoring of patients for renal and auditory impairment as well as serum levels is indicated. Once-daily aminoglycoside regimens have been instituted to maximize bacterial killing by optimizing the peak concentration to minimal inhibitory concentration ratio and reduce the potential for toxicity. Administering an aminoglycoside as a single daily dose can take advantage not only of its concentration-dependent killing ability but also of two other important characteristics: time-dependent toxicity and a more prolonged post-antimicrobial effect. The regimen consists of 5-7 mg/kg daily dose of gentamicin or 5-7 mg/kg dose of tobramycin. Subsequent interval adjustments are made by obtaining a single concentration in serum and a nomogram designed for monitoring of once-daily therapy. Antimicrobial doses are given at the interval determined by the drug concentration of a sample obtained after the start of the initial infusion. This regimen is clinically effective, reduces the incidence of nephrotoxicity, and provides a cost-effective method for administering aminoglycosides by reducing ancillary service times and serum aminoglycoside determinations. In this case, the serum level of gentamicin is high and requires adjustment. Changing the dosing interval from every 24 hours to every 36 hours is indicated. Decreasing the dose may lead to the same reduction in levels but with a reduction in effectiveness. Although the patient continues to have symptoms, this is common during the initial course of pyelonephritis and is not an indication at 48 hours to change antibiotic regimen. There are no indications to start aztreonam or n-acetylcysteine.

23. A seven-year-old boy has had multiple repairs for penoscrotal hypospadias. He has recurrent lower UTIs and postvoid dribbling. Renal ultrasound is normal. Pelvic ultrasound is shown. The most likely diagnosis is:

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A. cecoureterocele.
B. ectopic ureter.
C. Cowper's duct cyst.
D. prostatic utricle.
E. bladder diverticulum.
ANSWER=D
In boys with proximal hypospadias, the prostatic utricle is often enlarged. In a female, this would represent the distal one-third of the vagina. The utricle is of urogenital sinus origin. While an ectopic ureter or bladder diverticulum could have a similar appearance on ultrasound, they generally are not midline in location. Ectopic ureter or bladder diverticulum are not commonly seen with hypospadias. A cecoureterocele would have a bladder deformity in addition to a suburethral extension. A Cowper's duct cyst, also known as a syringocele, should be confined to the bulbous or prostatic urethra where Cowper's ducts drain.

24. A 65-year-old man uses 20 mg of tadalafil as needed for erectile dysfunction. His primary care provider would like to initiate doxazosin for hypertension. The next step is:
A. continue tadalafil 20 mg as needed.
B. decrease tadalafil to 10 mg as needed.
C. start tadalafil 5 mg daily.
D. stop tadalafil.
E. switch to intracorporal alprostadil.
ANSWER=B
Concomitant use of alpha-blockers and PDE-5 inhibitors can cause hypotension. When tadalafil is coadministered with an alpha-blocker, patients should be stable on alpha-blocker therapy prior to initiating treatment with tadalafil, and tadalafil should be initiated at the lowest recommended dose. Conversely, when starting an alpha-blocker, the lowest dose of either agent should be used, and they should not be taken at the same time. There is no need to stop tadalafil in this patient or switch to intracorporal injections if he has been successful on oral therapy. Of all the choices, decreasing to the lowest effective dose of tadalafil (10 mg for use as needed or 2.5 mg/day for once daily use) would be recommended for this man.

25. A 58-year-old man has fever, chills, and elevated alanine aminotransferase and aspartate aminotransferase two days after receiving his fourth dose of intravesical BCG for bladder cancer. Urinalysis was notable only for occasional RBCs. In addition to supportive care, isoniazid, and rifampin, the next step is:
A. pyrazinamide.
B. cycloserine.
C. corticosteroids.
D. cyclosporine.
E. gentamicin.
ANSWER=C
Disseminated BCG (grade 3 serious complications) presents with systemic signs and symptoms, some of which are due to acute inflammatory response to the bacillus. Thus, systemic steroids are recommended in addition to the standard drug regimen to which a BCG-associated infection usually responds. BCG, an attenuated strain of Mycobacterium bovis, is poorly controlled by pyrazinamide due to uniform resistance. Cycloserine often causes severe psychiatric symptoms and is strongly discouraged. The immunosuppressant cyclosporine has no role in the management of disseminated BCG. There is no clear evidence of a bacterial infection, so the use of gentamicin is not indicated.

26. A six-year-old boy with a history of neonatally ablated PUV has worsening bilateral hydroureteronephrosis despite timed voiding. He is incontinent at night and occasionally wet during the day. A 24-hour urine collection shows a urine volume of 2 L. UDS shows adequate compliance, no detrusor overactivity, no residual valves, and no VUR. The next step is:

A. decreased fluid intake.
B. dietary salt restriction.
C. DDAVP.
D. CIC.
E. continuous night time catheterization.
ANSWER=E
Patients with a concentrating defect due to obstruction such as PUV may present with worsening incontinence along with upper urinary tract deterioration due to excessive urine production. The urine volume will not decrease significantly with either salt or water restriction. Furthermore, water restriction is dangerous and often counterproductive, as it may lead to dehydration. Patients with a renal concentrating defect typically do not respond to DDAVP. Unless there is evidence of myogenic failure and incomplete bladder emptying, daytime CIC to further eliminate PVR is unlikely to help this patient. It has been suggested that continuous night time drainage can improve the fluid dynamics, thus restoring the upper urinary tract (decreasing bilateral hydroureteronephrosis), as well as improving daytime urinary incontinence.

27. A 65-year-old woman with chronic irritative voiding symptoms has persistent pan-sensitive E. coli UTIs. A renal ultrasound is normal, but cystoscopy shows several raised lesions in the bladder. Transurethral resection is performed. Pathologic study reveals giant cells and histiocytes containing concentrically laminated calcific inclusions. The next step is:
A. trimethoprim/sulfamethoxazole.
B. fluconazole.
C. dimethylsulfoxide.
D. corticosteroids.
E. isoniazid and rifampin.
ANSWER=A
Malakoplakia is an inflammatory process occurring more commonly in women than men (4:1). Irritative voiding symptoms are common, as is hematuria. It is associated with UTIs, most notably those due to E. coli. Most lesions are yellow, raised, and soft. Histologic examination reveals aggregates of large histiocytes (von Hansemann cells) which contain concentrically laminated calcific inclusions (Michaelis-Gutmann bodies). The primary disorder responsible for the disease may be abnormal bacterial digestion by tissue macrophages. Once an accurate diagnosis is made, patients should be treated with antibiotics (such as trimethoprim/sulfamethoxazole or fluoroquinolone). Use of bethanechol or ascorbic acid may enhance phagolysosomal activity. Extensive surgery is rarely necessary, although it may be needed to manage upper urinary tract involvement. The other answers are incorrect: fluconazole is for yeast infection, dimethylsulfoxide (DMSO) is for interstitial cystitis, corticosteroids is not the correct treatment for malakoplakia, and isoniazid and rifampin is for tuberculosis.

28. Primary idiopathic bladder stones in children form due to high urinary excretion of:
A. ammonia.
B. phosphate.
C. sodium.
D. calcium.
E. oxalate.
ANSWER=A
Primary idiopathic (endemic) calculi are commonly found in children from North Africa, the Middle East, and Asia. With a large immigrant population in the United States, it is important to be aware of this health problem. These children classically rely on a cereal-based diet that is lacking in animal proteins. The lack of protein leads to a dietary phosphate deficiency, low urinary phosphate, and high levels of urinary ammonia. Due to this, the most common stone found in children from these areas is ammonium acid urate. High urinary sodium, calcium, and oxalate are not characteristic findings with endemic bladder stones.

29. A 25-year-old intoxicated man has abdominal pain and gross hematuria following an MVC. He is hemodynamically stable, and his hemoglobin is 12 g/dL. CT scan with I.V. and oral contrast is shown. There are no pelvic fractures. The next step is:

"Images not available from the source"

A. serial hemoglobins and bed rest.
B. place a catheter and perform cystogram.
C. retrograde urethrogram.
D. embolization of segmental renal artery.
E. laparotomy and renorrhaphy.
ANSWER=B
Intoxication plus blunt abdominal injury, abdominal pain, and gross hematuria suggest a bladder perforation. The CT scan shows a low-grade renal injury. Although bed rest and serial hemoglobins are the appropriate management of low-grade renal injury, it is insufficient to focus on management of a low-grade renal injury when the bladder has not been completely evaluated. Discovery of a significant bladder injury could alter your decision for bed rest and possibly require surgical exploration. Similarly, renal embolization and renorrhaphy are both not indicated for low-grade renal injury and should not be performed. Therefore, a catheter should be placed and a cystogram performed. It is not necessary to perform a retrograde urethrogram when gross hematuria is present; this is indicated when there is blood at the meatus in the setting of a pelvic fracture or when a catheter cannot be passed into the bladder.

30. Six months after placement of a sacral neuromodulator, a 35-year-old woman is suddenly unable to sense the stimulation and her urinary urgency symptoms return. Interrogation of the device reveals elevated impedance measurements on two electrodes within the quadripolar lead. The next step is:
A. change pulse width of stimulation.
B. turn the device off and recheck impedances.
C. reprogram using the other two electrodes.
D. surgical exploration to check lead connections.
E. place new leads.
ANSWER=C
Impedance refers to the resistance to flow of electrons through a circuit. If there is too much resistance, the flow is limited. In the case of sacral neuromodulation, the circuit includes the neurostimulator circuitry, the extension, leads, patient tissue, and back to the circuitry, including all the connections. If the circuit is disrupted, for example, by a broken lead or a defective connection, impedances may be high. Patients may describe a sudden or gradual loss of sensation of stimulation or change in the character or location of the stimulation. If some electrodes show normal readings, the device should be reprogrammed using those electrodes prior to an exploration or revision. Turning the device off does not provide any helpful information with regards to impedance. Changing pulse width will not be helpful when the problem is too much impedance. Lead replacement is warranted if impedance is abnormal in all electrodes or if symptoms recur despite normal impedances, the latter of which would suggest a current leakage or lead displacement.

31. Because of the increased risk of adenocarcinoma of the bladder after bladder augmentation cystoplasty, current recommendations for annual monitoring include:
A. urine cytology.
B. urine fluorescence in-situ hybridization (FISH) analysis.
C. serum carcinoembryonic antigen (CEA) level.
D. renal and bladder ultrasound.
E. cystoscopy.
ANSWER=D

Patients who undergo bladder augmentation with bowel should be counseled on the possible long-term risk of carcinoma formation, renal and bladder calculi, and metabolic abnormalities. The earliest report of tumor formation is four years after bladder augmentation with bowel. Yearly cystoscopic surveillance and cytology have been recommended by the International Children's Continence Society (ICCS) as soon as 5 to 10 years following augmentation, but the evidence indicating the efficacy of screening protocols in this patient population is insufficient. Recent studies have shown that routine yearly endoscopy is not indicated due to the low incidence of malignancy following a bladder augmentation (approximately 2-4%), lack of proven benefit, and high cost. In the absence of other risk factors, the current recommendation is for annual visits with renal and bladder ultrasound (rule-out stones or the development of hydronephrosis secondary to non-compliance with CIC), electrolytes (rule out metabolic abnormalities), creatinine, serum B12 (rule-out nutritional deficiencies), and urinalysis (assess for hematuria). FISH analysis and CEA levels have not been proven standard of care for monitoring for the development of adenocarcinoma following bladder augmentation. Endoscopy is reserved for individuals with a past medical history of gross hematuria, microscopic hematuria (> 50 RBC/hpf), new onset of hydronephrosis (rule-out tumor obstructing the ureteral orifice), bladder calculi, chronic bladder/perineal pain, or a history of four or more symptomatic UTI per year. Using this screening criteria, > 90% of tumors arising in a bladder augment can be discovered without the use of annual endoscopy.

32. A 26-year-old man with significant obstructive voiding symptoms has a 3 cm distal bulbar urethral stricture. The next step is:
A. urethral dilation.
B. laser urethrotomy.
C. direct vision internal urethrotomy (DVIU).
D. excision and primary anastomosis.
E. substitution urethroplasty with graft.
ANSWER=E
Transurethral manipulation with dilation, DVIU, or laser urethrotomy has little to no success with strictures 3 cm in length. An excision and primary anastomosis of a 3 cm stricture at the distal bulbar urethra would create excessive tension and ischemia at the anastomotic site. This is in comparison to a proximal bulbar urethral stricture where the compliance of the urethral tissue is much greater, and the ability to mobilize the urethra more extensively to create a tension-free anastomosis is possible. Graft or flap interposition is the best option in this clinical scenario.

33. A 56-year-old man undergoes a radical cystoprostatectomy and orthotopic neobladder. Long-term preservation of renal function is most dependent on:
A. preferential use of ileum over colon.
B. use of > 60cm of detubularized bowel.
C. performance of an antirefluxing ureteroileal anastomosis
D. intraoperative neobladder capacity of ? 500 mL.
E. postoperative avoidance of any bacteriuria.
ANSWER=A
Reservoirs made of detubularized ileum appear to have the greatest compliance and lowest likelihood of generating intermittent high-pressure contractions. Several clinical studies have demonstrated that the urodynamic characteristics of the ileum appear to be superior to those of the colon and is, therefore, the preferred segment of bowel used for a neobladder. Larger bowel lengths with increased intra-operative volumes are not necessary as all bowel segments effectively stretch over time if there is adequate outflow resistance. In fact, commonly utilized techniques (i.e., Studer, Hauptmann) utilize 40-44 cm of detubularized ileum with resultant intra-operative volumes of 200 mL or less. For ileal neobladders, it has been shown that the capacity increases sevenfold after one year. The true benefits of anti-refluxing anastomosis remain uncertain. It does not appear that conduit pressures are transmitted to the renal pelvis. Also, there is no difference in conduits between those with versus without reflux, with regard to renal function measured two to five years postoperatively. Furthermore, the successful construction of an antirefluxing anastomosis does not prevent bacterial colonization of the renal pelvis. Many of these patients in fact have no untoward effects and do well despite chronic bacteriuria. Deterioration of the upper tracts is more likely when the culture becomes dominant for Proteus or Pseudomonas, and should therefore be treated in such cases, whereas those with mixed cultures may generally be observed (provided they are not symptomatic).

34. During vaginal repair of a post-hysterectomy VVF located near the vaginal vault apex, the easiest tissue to interpose as a flap/graft is:
A. buccal mucosa.
B. peritoneum.
C. omentum.
D. Martius fat pad.
E. gracilis.
ANSWER=B
Following hysterectomy, even a high VVF can often be repaired through a vaginal approach. Note that the literature does not clearly support the need for a graft in a primary VVF repair. However, of the grafts listed, a simple procedure to augment the repair is harvest of the peritoneum which is often present around the vaginal apex. This peritoneal flap can be placed over the two-layer fistula closure. Omentum can easily be harvested through a transabdominal approach but would not be an option transvaginally. Buccal mucosa has been described in case reports but would not offer benefit over more local tissue for a primary repair. Martius flaps are more commonly used for distal fistulas such as a urethrovaginal fistula. Myocutaneous flaps such as a gracilis flap are not appropriate for primary repair of a straightforward fistula.

35. A 60-year-old man is diagnosed with a single focus of CIS of the bladder. He is treated with six doses of intravesical BCG. One month after his last dose, his cystoscopy is normal, and his cytology is negative. The next step is:
A. bladder biopsy to confirm complete response.
B. observation with regular surveillance cystoscopy and cytology.
C. maintenance BCG with the first of three weekly doses at three months.
D. maintenance BCG with the first of three weekly doses at six months.
E. maintenance BCG single monthly dose for one year.
ANSWER=C
BCG maintenance therapy is indicated for patients with CIS (even if focal) who achieve a complete response to initial induction treatment. In particular, the Southwest Oncology Group (SWOG) trial reported an estimated median recurrence-free survival of 76.8 months in patients receiving maintenance BCG versus 35.7 months in the no maintenance arm ($p < 0.0001$). In that study, which has defined the current preferred regimen for maintenance BCG, patients received a six-week induction course followed by three weekly instillations of maintenance at three and six months and then every six months thereafter for three years. This patient is at the three-month point and should therefore receive the first set of maintenance treatments as the next step. Bladder biopsy is not necessary if the patient's cystoscopy and cytology are negative. Observation alone is not optimal therapy unless the patient has a contraindication or serious complication from BCG. Monthly BCG has been described and is commonly used but has not been tested against the maintenance schedule proven to be effective in the large published SWOG trial. In addition, investigators in a phase III clinical trial (NIMBUS Trial) compared a standard BCG schedule of six-week induction

followed by three-week maintenance at three, six, and 12 months (15 instillations) to a reduced frequency BCG schedule of induction at weeks one, two, and six followed by two-weeks (weeks one and three) of maintenance at three, six, and 12 months (nine instillations). Following a data review and safety analysis, patient accrual was halted as the reduced frequency schedule was inferior to the standard schedule regarding the time to first recurrence.

36. A 45-year-old man has a two-year history of frequency, diminished stream, and perineal discomfort. Examination, urinalysis, localization cultures, and cytology are all normal. Trials of antibiotics and an alpha-blocker have been unsuccessful. Uroflowmetry with EMG reveals a peak flow of 9 mL/sec, a voided volume of 160 mL, synergistic voiding, and a PVR of 100 mL. The next step is:

A. TRUS.
B. videourodynamics.
C. NSAIDS.
D. amitriptyline.
E. pelvic floor physiotherapy.
ANSWER=B

Differential diagnosis in this patient includes chronic pelvic pain syndrome or other underlying conditions such as bladder neck obstruction. The information provided and the diagnostic studies done to date are notable for diminished flow rate and incomplete emptying. The synergistic voiding rules out pelvic floor dysfunction. A wide range of studies have documented the prevalence of voiding dysfunction in these patients and the value of UDS evaluation, particularly with simultaneous video evaluation, in diagnosing bladder neck obstruction and guiding treatment. While TRUS, semen culture, and cystoscopy may all be useful in selected patients (when indicated by specific elements of the history or examination), there is no indication for any of them in this instance. The use of NSAIDS as monotherapy has not proven useful. Amitriptyline is a tricyclic antidepressant with both alpha and beta sympathomimetic stimulant effects and will actually worsen voiding symptoms in patients with bladder neck obstruction. Pelvic floor physiotherapy has not been found to be beneficial in patients with primary bladder neck obstruction and use at this time in a patient with presumed bladder neck obstruction is costly and inappropriate.

37. A 24-year-old man undergoes infertility evaluation. Physical examination reveals bilateral absence of the vas deferens. His semen analysis characteristics should include azoospermia and:

A. anejaculate volume of 3 mL.
B. a semen pH of 6.3.
C. semen liquefaction within 30 minutes.
D. semen coagulum formation.
E. normal semen fructose.
ANSWER=B

This patient has congenital bilateral absence of the vas deferens (CBAVD). This is mostly associated in men with cystic fibrosis transmembrane conductance regulator (CFTR) gene mutations. However, this diagnosis can be reached largely on physical examination and semen analysis prior to genetic testing. These men will have macroscopic semen parameters consistent with a pattern seen with ejaculatory duct obstruction, which includes azoospermia, low semen volume (< 1.0 mL), and acidic semen pH (< 7.0). They will also have an inability to form a semen coagulum and prolonged semen liquefaction. Semen fructose levels are low in men with either CBAVD or ejaculatory duct obstruction due to lack of seminal vesicle contribution to the semen. The remaining fluid comes from the prostate and peri urethral glands, which is typically acidic and devoid of fructose.

38. A 70-year-old man has a 2 cm high-grade squamous cell carcinoma of the distal urethra. MRI scan demonstrates invasion of the corpora and no lymphadenopathy. The next step is:

A. partial penectomy.
B. total penectomy with perineal urethrostomy.
C. partial penectomy with bilateral pelvic lymphadenectomy.
D. total penectomy, perineal urethrostomy, and bilateral pelvic lymphadenectomy.
E. partial penectomy with bilateral inguinal lymphadenectomy.
ANSWER=A

Squamous cell carcinoma of the distal (pendulous) urethra is managed by distal urethrectomy and penectomy with the goal of achieving a negative margin. If invasive disease involves the proximal penile urethra, total urethrectomy with or without penectomy, may be required. Neoadjuvant chemotherapy has not been tested except with locally extensive lesions to enhance resectability. For advanced distal urethral cancers (T3 +/- N1), chemoradiation has been used with consideration of surgical consolidation. The management of the inguinal region is different compared to primary penile carcinoma in that prophylactic lymphadenectomy for high-grade or high stage primaries without evidence of metastases on exam or imaging, is not indicated. Pelvic lymph node dissection is not indicated in the primary setting of a distal urethral cancer although it can occasionally be utilized after a favorable response to chemotherapy or chemoradiation.

39. A 50-year-old man has secondary infertility. He has been on tamsulosin and finasteride for three years. Examination is unremarkable and DRE reveals a 40 gram prostate. Semen analysis shows a volume of 0.4 mL, sperm concentration of 9 million/mL, and 30% motility. The next step is:

A. switch tamsulosin to silodosin.
B. discontinue finasteride.
C. discontinue finasteride and tamsulosin.
D. pseudoephedrine.
E. imipramine.
ANSWER=C

5-alpha-reductase inhibitors result in decreased dihydrotestosterone (DHT) and semen volume. A variable decrease in sperm concentration and motility may also occur. Alpha-blockers lead to relaxation of the bladder neck, resulting in retrograde ejaculation or anejaculation and decreased ejaculated semen volume. All of these effects are reversible with discontinuation of the medications. Silodosin has a higher rate of retrograde ejaculation than tamsulosin. Pseudoephedrine tightens up the bladder neck and will not cause reduction of semen volume, although it can be used as a treatment for retrograde ejaculation. It would, however, not improve the decreased semen parameters induced by finasteride and may worsen his LUTS. Imipramine is a sympathomimetic medication that was previously used as an anti-depressant. It has been used in cases of retrograde ejaculation, but similar to pseudoephedrine, would be used only if retrograde ejaculation continues following discontinuation of finasteride and tamsulosin (the likely causes in this case). Although not offered as an option here, discontinuation of tamsulosin alone could also have been considered as a first step.

40. A 50-year-old man has recurrent UTIs and left flank pain. CT scan is shown. The next step is:

"Images not available from the source"

A. diuretic renal scan.
B. retrograde pyelogram.
C. ureteroscopy and laser lithotripsy.
D. PCNL.
E. pyeloplasty and pyelolithotomy.
ANSWER=A

The patient has a possible UPJ obstruction along with the lower pole stone. He has recurrent UTIs that may be due to the UPJ,

infected urine, and likely an infected lower pole stone. Observation is not an option in this case. Since the patient has a suspected UPJ obstruction, a diuretic renal scan is needed before initiating a treatment option to determine the degree of possible obstruction. Retrograde pyelogram is invasive and does not quantify the degree of obstruction. If obstruction is confirmed, then a dismembered pyeloplasty with pyelolithotomy to remove the lower pole stone is possible. If obstruction does not exist, then ureteroscopy or PCNL is an option. With a possible tight UPJ, borderline stone size, along with lower pole location, ureteroscopy may require more than one procedure. PCNL would be a better option with or without anterograde endopyelotomy, depending on the result of the renal scan.

41. The best initial medical treatment for newly diagnosed prostate cancer with painful spinal metastases and new lower extremity weakness is:
A. enzalutamide.
B. abiraterone acetate.
C. relugolix.
D. leuprolide.
E. degarelix.
ANSWER=E
LH-RH antagonists, like degarelix or abarelix, bind immediately and competitively to the LH-RH receptors in the pituitary, significantly reducing LH and serum testosterone concentrations by 84% within 24 hours of administration. Hormonally naive patients with impending spinal cord compression or severe bone pain may uniquely benefit from this class of agents (or surgical orchiectomy). The direct antagonistic activity eliminates the testosterone flare which is characteristic of LH-RH agonists such as leuprolide. Historically, while ketoconazole has been used in this setting, the improved toxicity profile of degarelix makes this a better treatment option. Likewise, surgical orchiectomy may be utilized in this setting. Enzalutamide is a third-generation androgen receptor antagonist but has never been evaluated in this clinical setting. Abiraterone acetate is a CYP-17 inhibitor that lowers androgen synthesis. Relugolix is an oral GnRH receptor antagonist. All three are oral agents and would likely have longer onset of action compared to degarelix and this longer onset makes them inferior choices in this patient with presumed spinal cord compression requiring more urgent treatment.

42. A 24-year-old man is involved in a high speed MVC. CT scan reveals prompt uptake of contrast in the left kidney with a UPJ disruption. The right kidney is normal. He is hemodynamically stable with a normal hemoglobin. The next step is:
A. ureteral stent.
B. PCNT.
C. PCNT and perinephric drain.
D. flank exploration.
E. transabdominal exploration.
ANSWER=E
The patient has suffered a UPJ disruption following a rapid deceleration injury. Absolute indications for renal exploration include expanding/pulsatile hematoma, hemodynamic instability, suspected renal pedicle avulsion, and UPJ disruption. Exploration is best carried out through a transabdominal approach (not flank) which allows for better control of the renal vessels and thorough inspection of the bowel and intra-abdominal organs. Observation and minimally invasive approaches such as stent or PCNT, with or without perinephric drain, are not indicated in the presence of an acute UPJ disruption following blunt trauma.

43. A seven-year-old boy has testes in the upper portion of the scrotum that can be brought down into the dependent portion with some mild tension. They retract into the inguinal canal with body movement but return to their original upper scrotal position with relaxation. The next step is:
A. reassurance.
B. follow-up with annual exams.
C. scrotal ultrasound.
D. beta-hCG.
E. orchidopexy.
ANSWER=B
This boy has retractile testes which are felt to be due to an overactive cremasteric reflex. They are commonly seen in boys between the ages of three to seven. In the past, retractile testes were felt to be a variant of normal anatomy and further ascent was rare. However, more recent studies have shown that ascent is fairly common (ascending testis) and can occur in up to 30-50% of cases. The risk of developing an ascending testis is higher in children that present at an older age and those with significant tension along the cord structures. There is some data that suggest that an ascending testis may have some of the similar histologic findings and decreased fertility potential as that of an undescended testis. Thus, close follow-up with annual exams is recommended for children with retractile testes until puberty or when adequate intrascrotal positioning is well documented. In this patient, surgery is not indicated at this time and ultrasound is not adequate to document testis position or presence of a hernia. Human chorionic gonadotropin (hCG) injections have been shown to have some limited efficacy in children with an undescended testis but are not appropriate in the setting of a retractile testes since a response to hCG will not necessarily change the outcome. Close follow-up is still needed since an initial response to hCG may not be permanent.

44. A 60-year-old woman with weight loss has a 9 cm clear cell RCC with sarcomatoid features and three 1-1.5 cm pulmonary nodules. Hemoglobin is 8.0 mg/dL and remaining laboratory studies are normal. The next step is:
A. avelumab.
B. pembrolizumab.
C. ipilimumab and nivolumab.
D. lenvatinib and everolimus.
E. nephrectomy.
ANSWER=C
This patient has metastatic RCC (mRCC). Several prognostic models have been developed to guide therapy for patients with mRCC, most notably the Memorial Sloan Kettering Cancer Center (MKCC) Model and the International Metastatic Renal Cell Carcinoma Database Consortium (IMDC) Criteria. Importantly for the patient here, both of these models include anemia. In addition, institutional series have identified the presence of systemic symptoms as an adverse prognostic factor among patients undergoing cytoreductive nephrectomy for mRCC. Further, the presence of sarcomatoid features has in particular been associated with an adverse prognosis for patients with mRCC. Collectively, therefore, the presence of weight loss, sarcomatoid features, as well as abnormal laboratory parameters support an approach to management with initial systemic therapy for this patient. This strategy has the advantage of facilitating assessment of the disease's responsiveness to systemic therapy termed a ‘litmus test” — which may help to select those who might benefit from delayed surgical resection. Indeed, the SURTIME trial randomized patients with mRCC to initial versus delayed cytoreductive nephrectomy, and, although underpowered, reported higher overall survival (albeit as a secondary endpoint of the trial) in the deferred nephrectomy arm. Upfront cytoreductive surgery should in fact rarely be done in any patient with such features, particularly in the absence of local debilitating symptoms such as flank pain and hematuria. The combination of the checkpoint inhibitor medications ipilimumab, an antibody that blocks the interaction of CTLA-4 with its ligands, and nivolumab, an antibody that blocks the interaction between PD-1 with its ligands, was tested in a phase III randomized trial (CheckMate 214) versus sunitinib in patients with advanced RCC. The combination of ipilimumab and nivolumab demonstrated

significantly improved objective response rates as well as overall survival. As such, this combination therapy is a preferred regimen by the NCCN Guidelines for the firstline treatment of intermediate and poor risk patients with metastatic clear cell RCC. While pembrolizumab, an immune checkpoint inhibitor, may be utilized in combination with axitinib or lenvatinib for patients with newly diagnosed intermediate or poor risk metastatic clear cell RCC, pembrolizumab monotherapy is not approved for metastatic RCC. Similarly, while avelumab in combination with axitinib represents a first-line treatment option (although not a preferred regimen per the NCCN Guidelines) for patients with intermediate or poor risk metastatic clear cell RCC, avelumab monotherapy is not currently utilized in mRCC. Further, the combination of lenvatinib and everolimus is an option for second-line therapy for patients with mRCC; however, treatment with this regimen is not recommended in the first-line setting.

45. A 25-year-old woman has a chronic history of intermittent urinary stream and lower abdominal discomfort without significant urinary urgency. Physical examination is normal and PVR is 1 L. MRI scan of the brain and spine is normal, as is cystoscopy. Pressure flow analysis shows an active EMG during voiding. She has failed treatment with biofeedback and prefers not to do CIC. The next step is:

A. vaginal estrogen therapy.
B. alpha-blocker therapy.
C. onabotulinumtoxinA of the sphincter.
D. sacral neuromodulation.
E. sphincterotomy.
ANSWER=D

Fowler's syndrome was first described in 1985. It is a cause of urinary retention in young women that is associated with abnormally increased EMG activity that results in impaired external sphincter relaxation. No neurologic or anatomic abnormality is associated with the condition, though it has been noted that women with Fowler's syndrome often have polycystic ovaries raising the possibility of a focal hormonal role. That said, neither hormone therapy, onabotulinumtoxinA injection, or alpha-blockade have been found to be successful therapies. Interestingly, however, the condition has been found by several groups to be highly responsive to neuromodulation. Alpha-blockade would relax the bladder neck and smooth muscle but would have no effect on the striated muscle of the external sphincter. A sphincterotomy would not be indicated for Fowler's syndrome.

46. A 64-year-old man undergoes a partial penectomy for a high-grade pT1 squamous cell carcinoma of the penis and then chooses surveillance in follow-up. Nine months later, a 2 cm lymph node is palpated in the left inguinal region. CT scan is negative for additional lymphadenopathy or metastatic disease. The next step is:

A. four weeks of antibiotics.
B. left superficial inguinal lymph node dissection.
C. left superficial and deep inguinal lymph node dissection.
D. bilateral superficial and deep inguinal lymph node dissection.
E. excisional biopsy with systemic chemotherapy.
ANSWER=C

This patient has likely developed metastatic recurrence in the left inguinal region, consistent with clinical N1 disease. Since this is a delayed development, the patient should have a unilateral superficial and deep inguinal dissection only on the affected side. There are no clinical concerns for infection; therefore, antibiotics are not indicated. In a patient with palpable nodes (or in the setting of clinically negative nodes with a frozen section demonstrating cancer in the superficial nodes), both a superficial and deep lymph node dissection should be performed. Chemotherapy is not indicated without evidence of distant metastatic and/or unresectable disease.

47. A 35-year-old man with spina bifida has urinary incontinence despite antimuscarinics and CIC every three hours. UDS show detrusor overactivity and a detrusor LPP of 60 cm H20 at 200 mL. Continence is achieved two weeks after intradetrusor injection of 200 U of onabotulinumtoxinA. The next step is:

A. increase time between catheterizations.
B. repeat onabotulinumtoxinA in six months.
C. repeat onabotulinumtoxinA when incontinence returns.
D. repeat onabotulinumtoxinA when UDS evidence of detrusor overactivity returns.
E. repeat UDS now.
ANSWER=E

OnabotulinumtoxinA is indicated for neurogenic detrusor overactivity. However, the concerning UDS finding that can be seen in many patients with spina bifida, including this one, is loss of compliance and an elevated detrusor LPP. Elevated detrusor LPP specifically refers to a loss of compliance. A detrusor LPP > 40 cm H20 places patients at a greater risk for subsequent upper urinary tract damage. While this patient is now continent, that does not mean that his detrusor storage pressure is in a safe range and he should, therefore, undergo a repeat UDS. If the detrusor pressure is in a safe range at appropriate volumes, then increasing the interval between catheterizations can be considered, and he will likely require repeat injection in six to nine months when his symptoms return. If the detrusor pressures are not appropriately lowered with onabotulinumtoxinA, then bladder augmentation should be considered.

48. During left laparoscopic adrenalectomy, a 3 cm area at the upper medial pole of the kidney becomes pale following complete mobilization of the adrenal gland. The next step is:

A. observation.
B. I.V. fluid bolus.
C. I.V. heparin.
D. I.V. mannitol.
E. partial nephrectomy.
ANSWER=A

Devascularization of the upper pole of the kidney can occur during adrenalectomy due to inadvertent injury to an unsuspected accessory renal artery or upper pole branch of the main renal artery. If the area fed by the injured vessel is small, it can be ignored; however, larger injuries may require an attempt at revascularization. As the size of the devascularization in this case is small, the patient should be observed. All other listed maneuvers would likely be of no benefit to the small devascularized segment of renal parenchyma. I.V. fluid or |.V. mannitol to increase renal perfusion are incorrect because the arterial supply to the affected part of the kidney has been compromised and these measures will not recover arterial inflow. Similarly, |.V. heparin will not reestablish severed arterial blood supply. Finally, partial nephrectomy is not indicated, as there is no long-term harm caused by a 3 cm ischemic area, and the risk outweighs the benefit.

49. A 12-year-old boy has a radical orchiectomy for a paratesticular rhabdomyosarcoma confined to the spermatic cord. CT scan of the abdomen and pelvis is negative for metastatic disease. The next step is:

A. observation with CT scan every three months for the next year.
B. ipsilateral retroperitoneal XRT.
C. chemotherapy with vincristine and dactinomycin.
D. chemotherapy with vincristine, dactinomycin, and cyclophosphamide.
E. ipsilateral RPLND.
ANSWER=E

Current Children's Oncology Group protocols recommend that children ten years of age and older should have an ipsilateral RPLND as part of their routine staging prior to chemotherapy due

to their higher risk of retroperitoneal relapse. All children with rhabdomyosarcoma receive chemotherapy, but those older than ten years of age should receive a staging RPLND. Patients under age 10 who are clinical NO may receive vincristine and dactinomycin without RPLND. Those with metastatic disease or who are clinical N1 will receive additional agents such as cyclophosphamide. XRT is reserved for those with pathologically node-positive RPLND. Observation alone is not an option for rhabdomyosarcoma.

50. A 58-year-old woman is unable to catheterize her right colon pouch and has increasing right lower quadrant pressure and severe pain. A 14 Fr straight or Coudé-tip catheter can only pass 4 cm and there is no return of urine. The next step is:
A. dilation of stoma.
B. channel cannulation under fluoroscopic guidance.
C. percutaneous drainage of pouch.
D. bilateral PCNT placement.
E. open surgical revision.
ANSWER=C
Inability to pass a catheter in spite of multiple attempts is an emergency and the urologist should get involved early. Difficulty with catherization is often due to a narrow stoma at the skin or a tortuous efferent limb that can be more angled with a distended pouch. Initial attempts with a straight catheter should be followed by use of a 16 Fr Coudé-tip catheter with lots of lubrication. Smaller catheters (14 Fr or 12 Fr) can also be useful in navigating a narrow stoma or tortuous efferent limb. Use of a larger catheter (i.e., 20 Fr as is often used for BPH) will unlikely be helpful. Fluoroscopic guidance is also unlikely to aid in cannulation of the efferent limb in such cases and would not be utilized in an emergency situation such as this. Likewise, if the patient was not in pain and the situation was less urgent, then an attempt at endoscopic catheter placement would be a reasonable option. If initial attempts at catheterization fail, a helpful step is to drain the distended pouch. This maneuver will not only relieve the patient's pain but also may straighten out a kink in the efferent limb. This procedure can safely be done percutaneously a few centimeters to the right and inferior to the stoma, given that the right colon and small bowel usually lie medial to the reservoir. This can be achieved with a long 18- or 16-gauge angiocatheter. The use of a spinal needle (for a test pass) and/or bedside ultrasound can be utilized if the pouch location remains uncertain. Bilateral PCNT may relieve upper tract obstruction but will not necessarily decompress the pouch and avoid the possibility of rupture. Open revision is not warranted at this time, and such procedures are most often used for narrow stomas or tortuous efferent limbs that are refractory to conservative management. Stoma dilation will not solve the immediate problem of a distended pouch, and in addition, this patient is able to pass the catheter beyond the stoma. The patient should be counseled on compliance with a timed catheterization schedule.

51. A 45-year-old Black man has urinary frequency and microscopic hematuria. CT scan and a T2-weighted MRI scan are shown. The lesion most likely to be found in the bladder is:

"Images not available from the source"

A. cystitis cystica.
B. cystitis follicularis.
C. cystitis glandularis.
D. nephrogenic adenoma.
E. malakoplakia.
ANSWER=C
Pelvic lipomatosis is a benign condition of the pelvis associated with deposition of mature unencapsulated fat in the retroperitoneal pelvic space producing the typical "pear-shaped" appearance of the bladder on CT scan. This condition also causes a straightening and tubular appearance of the rectum. It is more common in Black men and is associated with obesity and with cystitis glandularis of the bladder in up to 40% of cases. The other options (cystitis cystica, cystitis follicularis, nephrogenic adenoma, malakoplakia) are not associated with pelvic lipomatosis.

52. A 75-year-old man with fatigue has a 3.0 cm renal mass with retroperitoneal and mediastinal lymphadenopathy. Serum creatinine is 1.7 mg/dL, and metastatic evaluation is otherwise negative. The next step is:
A. renal mass biopsy.
B. lymph node biopsy.
C. percutaneous ablation followed by ipilimumab and nivolumab.
D. partial nephrectomy followed by cabozantinib and nivolumab.
E. radical nephrectomy with RPLND followed by axitinib and pembrolizumab.
ANSWER=B
Lymphadenopathy out of proportion to the size of the renal mass, together with the presence of constitutional symptoms and absence of visceral metastases, should raise concern that the patient may have a diagnosis of lymphoma. Thus, the next step here would be to biopsy a lymph node to establish the histologic diagnosis. The renal mass may represent either renal involvement with lymphoma or a separate primary renal neoplasm. If the biopsy demonstrates RCC, this would not rule-out the presence of concurrent lymphoma; therefore, lymph node biopsy would be the most appropriate next step to determine a diagnosis with potentially one test. If the patient has lymphoma, this diagnosis should be evaluated and managed prior to addressing such a relatively small renal mass in a patient without local symptoms. Moreover, per AUA Guidelines, renal mass biopsy should be performed prior to or at the time of ablation to provide pathologic diagnosis and guide subsequent surveillance.

53. A 25-year-old man has severe diurnal and nocturnal urinary urgency, frequency, and intermittent gross hematuria. Urine culture is negative. CT urogram reveals a small thick-walled bladder but is otherwise unremarkable. Cystoscopy reveals multiple glomerulations and petechial hemorrhages and no Hunner's lesions. Bladder biopsy shows severe inflammation and epithelial denudation. The most likely etiology is:
A. ketamine abuse.
B. genitourinary tuberculosis.
C. malakoplakia.
D. herpes simplex virus.
E. cytomegalovirus.
ANSWER=A
Ketamine (also known as: K, Special K, Vitamin K, green, and jet) is a tranquilizer that will induce a trance-like state while providing pain relief, sedation, and memory loss. Heart rate, respiratory function, and airway reflexes will remain functional. Ketamine is most commonly used for pain relief in emergency rooms and intensive care units and/or sedation at the time of anesthetic induction. It has gained popularity as a street drug and has quickly outgrown heroin and methamphetamine as the drug of choice in many parts of the world due to its low cost and easy accessibility. Although ketamine's recreational use initially blossomed in Asia, its use has spread worldwide. In a recent survey of New York City clubs, 21% of adults aged 18 to 29 have admitted to using ketamine. In 2015, an estimated 2.3 million adults and adolescents in the United States have abused ketamine. Urologists should be aware that the chronic use of ketamine can induce ketamine cystitis. Symptoms, cystoscopic findings, and biopsy findings are highly consistent with non-Hunner's interstitial cystitis, and without the proper history, distinction between the two diagnoses is almost impossible. Ketamine cystitis will usually lead to a severely fibrotic end-stage bladder that will result in the need for cystectomy. There are, however,

successful case reports where the fibrosis has been halted or reversed by the use of intravesical chondroitin sulfate or hyaluronic acid. Tuberculosis of the bladder occurs secondary to tuberculosis of the kidney, and, therefore, upper tract abnormalities would be expected on CT scan. Malakoplakia typically manifests as mucosal plaques or nodules with bladder biopsy demonstrating Michaelis-Gutman bodies. Herpes simplex virus infection causes painful ulcers of the genitalia typically without bladder involvement. Cytomegalovirus may cause hematuria and urinary symptoms but only in …

54. A 28-year-old man with infertility for two years has a normal physical examination. Semen analysis reveals a volume of 4.0 mL, sperm concentration of 12 million sperm/mL, and motility of 60%. Repeat analysis is similar. The 25-year-old female partner's evaluation is normal. The next step is:

A. post-ejaculatory urinalysis.
B. genetic testing.
C. scrotal ultrasound.
D. intrauterine insemination.
E. in vitro fertilization/ICSI.

ANSWER=D

The patient has normal ejaculatory volume and mild oligospermia with a total sperm count of 48 million and a total motile count of 29 million. Post-ejaculate urinalysis is indicated with low volume ejaculates to determine if retrograde ejaculation is present. Genetic testing, including karyotype and Y chromosome microdeletion analysis, should be ordered with sperm densities lower than 5 million/mL. Since no clinical varicoceles or other palpable scrotal abnormalities are noted, scrotal ultrasound is not indicated. Intrauterine insemination (IUI) is appropriate with mild oligospermia in a young couple. If pregnancy does not occur after several IUIs, regular in vitro fertilization may be considered. ICSI is indicated with severe oligospermia.

55. While using an argon beam electrocoagulator during a laparoscopic partial nephrectomy, poor tidal volumes are noted. The next step is to:

A. obtain deeper sedation.
B. increase ventilation rate.
C. add positive end-expiratory pressure (PEEP).
D. decrease CO2 insufflation flow rate.
E. release pneumoperitoneum.

ANSWER=E

During the use of the argon beam electrocoagulator in a laparoscopic setting, intraperitoneal pressure can rapidly increase, resulting in poor tidal volumes and compromised ventilation. It is important to release the pneumoperitoneum from one of the trocar ports (by "venting") during the use of an argon beam in order to avoid over-pressurizing the abdomen with the infused argon gas. If unrecognized, this can cause an abrupt increase in intra abdominal pressure and eventual compromise of ventilation. Due to the amount of argon gas used and the resulting intraabdominal pressure, obtaining deeper sedation, adding PEEP or increasing ventilation rate will not help the lungs to clear the argon gas fast enough to mitigate the effects of the excessive argon-related increased intra-abdominal pressure. Decreasing CO2 insufflation rate will not impact intraperitoneal pressure in this setting.

56. A 41-year-old, morbidly obese man with a low libido and a testosterone of 201 ng/dL is seeking treatment for erectile dysfunction. The next step is:

A. exercise.
B. sildenafil.
C. clomiphene citrate.
D. transdermal testosterone.
E. intramuscular testosterone

ANSWER=B

Men with erectile dysfunction (ED) should be informed regarding the treatment option of an FDA-approved oral PDE-5 inhibitor, such as sildenafil, including discussion of benefits and risks/burdens unless contraindicated. While diet and exercise may improve his erectile function, this will take time, and in some studies, up to two years. Treatment with PDE-5 inhibitors will be the most expeditious way of addressing his issue. Clomiphene citrate is an estrogen blocker and increases endogenous testosterone levels. Testosterone therapy is not considered first line therapy for ED. Thus, neither clomiphene citrate nor testosterone cypionate are indicated in this scenario. Although not offered as an option here, if a man with ED has testosterone deficiency (< 300 ng/dL), he should be informed that combination therapy with testosterone and PDE-5 inhibitors may be more efficacious.

57. While being positioned prone for PCNL access to treat a struvite partial staghorn renal calculus, a morbidly obese patient develops markedly increased airway pressures. After returning the patient to the supine position, airway pressures normalize. The next step is to:

A. terminate the procedure and start acetohydroxamic therapy.
B. convert to ureteroscopy and laser lithotripsy.
C. convert to robotic anatrophic nephrolithotomy.
D. proceed with supine PCNL.
E. perform prone PCNL with increased positive end expiratory pressure.

ANSWER=D

The prone position was described by Goodwin and colleagues (1955) for percutaneous access to the upper urinary tract collecting system, and over time this position became standard. It has the advantage of presenting a large surface area (the patient's back) that provides many choices of access sites and a stable horizontal working surface. The posterior or posterolateral approach is the most direct one to the desirable posterior calyces and comes closest to approaching the kidney through Brodel's avascular line. Prone positioning does have some disadvantages. It is associated with a decrease in cardiac index and can also be associated with decreased pulmonary capacity. The anesthesiologist has poor access to the airway with the patient in the prone position, and prone positioning might not be possible in patients with morbid obesity. For the present scenario, acetohydroxamic acid should only be used if surgical therapy is not possible. Given the infected and staghorn nature of the stone, ureteroscopy will be less optimal for complete stone clearance. Supine PCNL is preferred if the patient cannot tolerate the prone position, as in the present scenario, and is the correct choice. There are several different ways to position a patient for a supine PCNL; all of the various scenarios allow for access to the kidney along the mid-axillary line. Prone positioning and increasing positive end expiratory pressure for the entire procedure is not the safest approach in a patient who suffers increased airway pressures on initial prone positioning. Robotic anatrophic nephrolithotomy has been reported, however has potential for increased morbidity, particularly in this morbidly obese patient and increased loss of renal function. Therefore, it is still considered a second-line approach if PCNL is not technically feasible (approach to kidney was unsafe secondary to renal anatomy/surrounding structures or stone was more complex in nature).

58. A 66-year-old woman has dysuria and light bleeding noted on her underwear and toilet paper after urinating. On examination, she has a 1 cm circumferential urethral prolapse and the tissue is pink and mucosal appearing. PVR is 95 Ml and urinalysis shows 0-2 RBC/hpf and 0-2 WBC/hpf. Her last pap smear from one year ago was normal. The next step is:

A. topical estrogen.
B. pelvic ultrasound.
C. pelvic MRI scan.

D. biopsy.
E. excision.
ANSWER=B
This patient has a circumferential urethral prolapse with normal-appearing mucosa. The most common symptom of urethral prolapse is vaginal bleeding/spotting with wiping, and voiding symptoms may be present as well. The primary treatment is vaginal estrogen cream. However, in a post-menopausal woman with a uterus, a transvaginal ultrasound should be obtained first to rule out endometrial pathology as a cause for post-menopausal bleeding. Ultrasound is indicated as initial imaging of the uterus, though a pelvic MRI scan might be a necessary follow-up exam if there are abnormal findings. Malignancy is rarely associated with urethral prolapse, but biopsy should be considered if the diagnosis is uncertain. In this patient with normal-appearing mucosal prolapse, a biopsy would not be indicated unless additional features of her exam were concerning. In patients presenting with refractory bleeding or pain, thrombosed or obstructing lesions, earlier surgical excision can be considered versus a trial of vaginal estrogen cream.

59. A 32-year-old man has a right radical orchiectomy for a pure seminoma in a solitary testicle. Preoperative staging studies are negative for metastasis and tumor markers are normal. Two weeks after orchiectomy, his beta-hCG is 12 mlU/mL. The next step is:
A. exogenous testosterone and repeat markers.
B. CT scan of chest, abdomen, and pelvis.
C. PET-CT scan.
D. brain MRI scan.
E. carboplatin.
ANSWER=A
The management of testicular cancer involves close monitoring of serum tumor markers such as AFP and beta-hCG. Beta-hCG levels are elevated in 20-40% of low-stage non-seminomas and 40-60% of advanced NSGCT. Additionally, approximately 15 20% of seminomas secrete beta-hCG. The half-life of beta-hCG is 24-36 hours. Consequently, monitoring beta-hCG after the removal of the primary tumor is essential in the initial management of testicular tumors. Immunoassays for hCG are directed at the beta-subunit, and thus there can be some cross reactivity with LH. This cross-reactivity may lead to false positive hCG elevations in patients with primary hypogonadism. False elevations will normalize within 48-72 hours after the administration of testosterone. In this patient who has now been rendered anorchid by removal of a solitary testicle, the elevated hCG might be due to this cross-reactivity to LH. In the setting of negative preoperative metastatic studies, it will be quite rare to have progressive disease. Consequently, the administration of exogenous testosterone and a repeat marker test is the correct next step in this case. Immediate treatment with either carboplatin, BEP, or XRT is not indicated until clarification of the source and cause of the mild elevation of his hCG and documentation of the need for active treatment. Repeat imaging this soon after surgery is not necessary unless the tumor marker elevation is ascertained to be tumor related. PET-CT scan is not indicated in seminoma prior to chemotherapy. Brain MRI scan is not indicated unless tumor marker elevation is documented to be of tumor origin. If he has elevation of hCG due to tumor, then it would change his primary management.

60. Regarding family members of a child with VUR, VCUG screening should be performed in:
A. all siblings.
B. all offspring.
C. any non-toilet-trained sibling.
D. any sibling with prenatal hydroureteronephrosis.
E. any sibling with prenatal bilateral pelviectasis.
ANSWER=D
VCUG is recommended if there is evidence of renal scarring on ultrasound or a history of UTI in the sibling who has not been tested. VCUG is recommended for children with high-grade (Society of Fetal Urology grade 3 and 4) hydronephrosis (not just pelviectasis), hydroureter, an abnormal bladder on ultrasound (late-term prenatal or postnatal), or who develop a UTI. VCUG is not routinely recommended for all siblings of a child with VUR or for the offspring of a former patient with VUR.

61. During PCNL, the urologist moves from three feet away from the x-ray source to six feet away. Radiation exposure is:
A. not appreciably different.
B. one-half the original value.
C. one-third the original value.
D. one-fourth the original value.
E. one-eighth the original value.
ANSWER=D
The intensity of radiation is inversely proportional to the square of the distance from the source. This is known as the "Inverse Square Law' and is important for clinicians who use ionizing radiation. In short, by doubling the distance away from the x-ray source, the radiation exposure is reduced four-fold so that radiation exposure is one-fourth the original value. Such a maneuver is one of the most effective techniques to reduce radiation exposure during fluoroscopic procedures.

62. A five-year-old boy has intermittent, painless gross hematuria. Ultrasound and scout film from his VCUG are shown. The next step is:

"Images not available from the source"

A. observation.
B. SWL.
C. ureteroscopy and lithotripsy.
D. percutaneous antegrade ureteroscopy and lithotripsy.
E. ureterolithotomy.
ANSWER=E
This five-year-old boy has a 3 cm distal right ureteral calculus that is relatively asymptomatic. Although there is no associated hydronephrosis or ureteral dilation, a large stone of this size is unlikely to pass spontaneously. Observation would not be an option. The size and location of the calculus in this boy make SWL and endoscopic approaches difficult and unlikely to be successful in achieving a stone-free state. In addition, there would be a significant risk of retained stone fragment(s) and/or ureteral injury with either of these modalities. Open ureterolithotomy via lower abdominal muscle splitting (Gibson) incision or laparoscopic/robotic ureterolithotomy would be most likely to achieve a stone-free state, least likely to cause a complication, such as urethral stricture, and would also allow inspection of the distal ureter for any anatomical abnormality predisposing to stone formation in this location.

63. As compared with conventional laparoscopic donor nephrectomy, the hand-assisted approach is associated with:
A. increased incidence of ureteral strictures.
B. shorter warm ischemia times.
C. decreased blood loss.
D. longer hospitalizations.
E. delayed allograft function.
ANSWER=B
The outcomes of hand-assisted laparoscopic donor nephrectomy are, in general, comparable to the pure laparoscopic approach with regards to acute and long-term allograft function, operative times, length of hospital stay, estimated blood loss, and overall complication rates. However, the most consistent advantage appears to be a shorter warm ischemia time due to more direct means of specimen extraction as a result of the hand-port device.

Nevertheless, the true clinical benefit of this advantage remains uncertain.

64. A 64-year-old man with a PSA of 17.5 ng/mL has high volume Gleason 4+3=7 prostate cancer and desires radical prostatectomy. Bone scan reveals increased uptake in the 12th thoracic vertebra. A plain x-ray film is negative. The next step is:

A. proceed with surgery.
B. FDG-PET scan.
C. MRI scan of spine.
D. ADT for three months then follow-up bone scan.
E. bone biopsy.

ANSWER=C

In patients with a high likelihood of metastatic disease, every effort must be made to rule out distant disease prior to local therapy. Bone scan can have a false positive finding due to a history of bone fractures, trauma, surgery, degenerative disease, or arthritis. Conversely, plain films can have a false negative test due to the limited sensitivity of plain radiography. In this patient, CT or MRI scan would further clarify the cause of radionucleotide uptake and confirm or reject the presence of metastatic disease before proceeding with therapy. Proceeding directly to surgery or XRT in these patients would risk overtreatment of the primary in the setting of metastasis. While other radioisotopes used for PET imaging have proved useful in staging of prostate cancer (i.e., fluciclovine or PSMA-based imaging), FDG-PET is not useful in prostate cancer. Bone biopsy would also not be necessary when other imaging modalities could address this situation. ADT with follow-up bone scan may show regression of activity of this area if there were metastasis at the site; however, this would delay therapy in a potential false positive bone scan.

65. A 14-year-old boy with a thoracic spinal cord injury is incontinent despite tolterodine and CIC every four hours. He is dry after starting extended-release oxybutynin 15 mg, but develops severe dry mouth, constipation, and difficulty concentrating at school within two weeks. Following discontinuation of oxybutynin, the next step is:

A. polyethylene glycol (MiraLAX®) and increase hydration.
B. oral imipramine.
C. intravesical oxybutynin.
D. intradetrusor onabotulinumtoxinA.
E. augmentation cystoplasty.

ANSWER=C

Common side effects of oral oxybutynin are constipation, dry mouth, blurred vision, reduced sweating, facial flushing, and neurologic side effects such as altered sensorium and behavior changes. These are thought to be due to hepatic metabolism of oxybutynin to desethyloxybutynin, which is responsible for these side effects. This can be mitigated with either intravesical or transdermal administration of the drug with equal efficacy. The side effects related to oral oxybutynin will not usually improve with time, so additional therapy with hopes for improvement is not reasonable. Oral imipramine as a solo therapy does not provide similar benefits as aggressive oxybutynin therapy. IntradetrusorOnabotulinumtoxinA injections have been shown to be beneficial in pediatric LUTS dysfunction but may not provide long-term benefits and may commit the child to multiple endoscopic procedures under anesthesia. Augmentation cystoplasty would be an option only in the face of failure of the non-surgical options listed. Treatment of constipation alone is unlikely to resolve LUTS in a child with a neurogenic bladder.

66. A man has numbness of the right anterior scrotum and medial thigh after pelvic lymphadenectomy. The nerve most likely injured is the:

A. femoral.
B. genitofemoral.
C. iliohypogastric.
D. ilioinguinal.
E. lateral femoral cutaneous.

ANSWER=B

The cutaneous innervation of the scrotum is from both the ilioinguinal and the genital branch of the genitofemoral nerve. The ilioinguinal nerve innervates the anterior scrotum and the mons pubis. The genital branch of the genitofemoral nerve innervates the anterior scrotum and the medial thigh. The posterior femoral cutaneous branch of the sacral plexus innervates the posterior aspect of the scrotum. The iliohypogastric nerve provides motor supply to the internal oblique and transversalis muscle and sensory innervation to the lower abdominal wall.

67. A 69-year-old man undergoes a robotic simple prostatectomy for a 150 gram prostate. A 22 Fr 3-way urethral catheter with continuous bladder irrigation is in place. Gross hematuria with clots is noted in the recovery room. Vitals are stable. The next step is manual irrigation and:

A. observation.
B. upsize urethral catheter.
C. add water to urethral catheter balloon and place catheter on traction.
D. cystoscopy and fulguration.
E. re-exploration in operating room.

ANSWER=C

In the recovery area, the outputs from the pelvic drain and urethral catheter (and suprapubic tube, if present) are monitored. In addition, it is routine to verify the hematocrit. If significant hemorrhage is noted, the urethral catheter may be placed on traction so that the balloon containing 50 mL of saline can compress the bladder neck and prostatic fossa. Constant and reliable traction can be maintained by securing the catheter to the abdomen or thigh. In addition, continuous bladder irrigation can be initiated to prevent clot formation. For most patients, these measures are adequate and effective. However, if excessive bleeding persists after these measures, the urethral catheter can be removed in the operating room and a cystoscopic inspection of the prostatic fossa and bladder neck can be performed to identify and fulgurate discrete bleeding sites. If marked hemorrhage should continue to persist, re-exploration should be strongly considered. Exchanging the catheter should be avoided and would only be considered if the catheter is not draining despite manual irrigation.

68. A 28-year-old man with abnormal semen parameters has a left testicular biopsy. Pathology reveals germ cell neoplasia in situ (GCNIS). He has a palpably normal contralateral testis and desires a biologic child. The next step is:

A. surveillance with periodic testicular ultrasound.
B. right testicular biopsy.
C. low dose XRT to the left testicle.
D. single agent carboplatin chemotherapy.
E. left radical orchiectomy with sperm harvesting.

ANSWER=A

Germ cell neoplasia in situ (GCNIS) can be diagnosed by testicular biopsy performed for the investigation of infertility. The rationale for treatment of GCNIS is based on the relatively high risk of the eventual development of an invasive germ cell tumor (50% of men with GCNIS develop invasive GCT within five years). Treatment options include orchiectomy, low-dose XRT, and close observation. Platinum-based chemotherapy is not effective against GCNIS, as ~30% (with cisplatin) and ~70% (with carboplatin) of patients still have GCNIS after receiving chemotherapy. Biopsy of the contralateral testicle will not affect management as the patient is already known to have GCNIS in the index testicle. The choice of therapy should be individualized

based on the patient's desire for future paternity, the presence or absence of a normal contralateral testis, and the patient's desire to avoid testosterone replacement therapy. Radical orchiectomy is the most definitive treatment, although low-dose radiotherapy (20 Gy) is associated with similar rates of local control with the prospect of preserving testicular endocrine function owing to the relative radioresistance of Leydig cells compared with germinal epithelium. For patients with abnormal semen parameters but sufficient for assisted reproductive techniques, surveillance with periodic ultrasound evaluation of the testis is a reasonable strategy with deferred therapy until successful pregnancy and/or development of GCT. While XRT may be effective for cancer control, scatter from XRT to the contralateral testis may impair spermatogenesis. While left radical orchiectomy is the most definitive treatment, it should not be recommended as the first option in patients who prioritize fertility and testicular androgen production. However, it should be recommended as the first option in those patients who prioritize reduction in cancer risk.

69. The most likely etiology for hydronephrosis in an ectopic kidney is:
A. VUR.
B. aberrant crossing vessels.
C. UPJ obstruction.
D. ureterovesical junction obstruction.
redundant ureter.
ANSWER=C
The axis of the ectopic kidney is slightly medial or vertical, but it may be tilted as much as 90 degrees laterally so that it lies in a true horizontal plane. The renal pelvis is usually anterior (instead of medial) to the parenchyma because the kidney has incompletely rotated. As a result, 56% of ectopic kidneys have a hydronephrotic collecting system. Half of these cases are a result of obstruction of the ureteropelvic or ureterovesical junction (70% and 30%, respectively), 25% from VUR grade 3 or greater, and 25% from the malrotation alone. VUR has been found in 30% of children with ectopic kidneys. The length of the ureter usually conforms to the position of the kidney; the ureter is occasionally slightly tortuous, but it is rarely redundant. The ureter usually enters the bladder on the ipsilateral side with its orifice positioned normally, except for those unusual cases with ectopic ureters. The arterial and venous network is anomalous, and its vascular pattern depends on the ultimate position of the kidney. There may be one or two main renal arteries arising from the distal aorta or from the aortic bifurcation, with one or more aberrant arteries emanating from the common or external iliac or even the inferior mesenteric artery. The kidney may be supplied entirely by multiple anomalous branches, none of which arise from the aorta. In no instance has the main renal artery arisen from the level of the aorta that would be its proper origin if the kidney were positioned normally.

70. A 28-year-old woman is 30 weeks pregnant and develops left flank pain requiring parenteral analgesics. Renal ultrasound demonstrates left hydronephrosis and no ureteral jet, but no stone is seen. The next step is:
A. KUB.
B. low dose CT scan.
C. ureteral stent.
D. ureteroscopy.
E. PONT.
ANSWER=B
Renal ultrasound is the initial imaging choice for pregnant women, as it does not expose them to ionizing radiation. In the present scenario, where a stone is suspected but cannot be confirmed on ultrasound, further imaging is recommended. The radiation exposure of a low dose CT scan is similar to that achieved with a limited IVP and does not expose the patient to I.V. contrast material. Furthermore, the American College of Obstetricians and Gynecologists state that an indicated imaging study should not be withheld on the basis of pregnancy. KUB can provide limited data and will not be as useful as a low dose CT scan in this clinical scenario. Ureteral stent, ureteroscopy, and PCNT are all reasonable treatments for patients with obstructing stones; however, in the present scenario, the diagnosis of a stone has not yet been confirmed.

71. A 38-year-old man undergoes a right nephroureterectomy for low-grade pTa urothelial carcinoma. At his three-month appointment, his follow-up evaluation should include:
A. genetic counselling.
B. urine cytology.
C. chest x-ray.
D. CT scan of abdomen/pelvis.
E. blue light cystoscopy.
ANSWER=A
This patient has had upper tract urothelial carcinoma at a young age. Patients less than 55 years old who are diagnosed with upper tract urothelial carcinoma should be strongly considered for genetic counseling and/or testing for Lynch syndrome. Lynch syndrome is caused by a germline mutation in one of the DNA damage repair genes, such as MLH1, MSH2, MSH6, and PMS72. In addition to upper tract urothelial carcinoma, this familial cancer syndrome is characterized by increased risk of developing malignancies of the colon, pancreas, ovary, stomach, and uterus at an early age. In this patient with low-grade pTa disease, the addition of blue light to cystoscopy of the bladder is unlikely to be of significant benefit. Similarly, at three-month follow-up there is no need to perform a CT-urogram or chest X-ray since the patient had low-grade Ta disease and the risk of metastatic disease is very low. Urine cytology is discouraged for follow-up of low-risk nonmuscle invasive bladder cancer based on the most recent AUA Guideline on Non-muscle Invasive Bladder Cancer. Low risk, as defined in the AUA Guideline, includes those patients with an initial, solitary, low-grade Ta urothelial carcinoma of the bladder. Although this patient has upper tract urothelial carcinoma, urine cytology is unlikely to be beneficial in this patient.

72. A 36-year-old man has oliguria 36 hours following ureteral reimplantation of a solitary kidney. On maintenance I.V. D5 1/2 normal saline, labs are: Na 131 mEq/L, K 4.0 mEq/L, CO2 17 mEq/L, BUN 34 mg/dL, and creatinine 1.5 mg/dL. Following PCNT, urine output increases to 8 mL/kg/hour. He is at risk of developing:
A. acidosis.
B. hypermagnesemia.
C. hyponatremia.
D. hypokalemia.
E. hypercalcemia.
ANSWER=D
This patient has started a post-obstructive diuresis from relief of an obstructed reimplant in a solitary kidney. Excess free water that had been retained results in hyponatremia and should now be excreted allowing the serum sodium to rise, not fall. The chloride level will likely follow sodium changes and rise. The acidosis should also improve with relief of the obstruction in the solitary kidney. The potassium level is normal as the diuresis begins, which is likely due to the patient's I.V. fluid containing no potassium, and his oral potassium intake has likely been minimal since surgery as well. The diuresis will cause increased potassium losses in the urine due to obligate excretion of potassium and there will also be intracellular shift of potassium ions as the acidosis corrects. Both of these put the patient at substantial risk for significant hypokalemia. Potassium replacement should likely be started once the diuresis is underway. Serum magnesium and calcium may decrease with postobstructive diuresis but does not decrease as much as potassium.

73. A five-month-old boy is treated for his first febrile UTI. Ultrasound of the right kidney and VCUG are shown. The left kidney is normal. Diuretic renal scan with an indwelling catheter shows diminished function in the right lower pole with a T1/2 time of 20 minutes. The next step is antibiotic prophylaxis and:

"Images not available from the source"

A. observation.
B. lower pole pyeloplasty.
C. lower pole to upper pole pyeloureterostomy.
D. common sheath ureteral reimplant.
E. lower pole heminephrectomy.
ANSWER=A
This boy has high-grade VUR into the lower pole of a duplicated system. The reduced renal function that is seen on the renal scan is likely secondary to renal dysplasia. Renal dysplasia is not unique to primary isolated VUR but may also occur in a variety of urologic settings. Duplex renal moieties, prune-belly syndrome, and PUVs may all exhibit reflux-associated renal dysmorphism, particularly when the grade of VUR has been high. The incidence of a concomitant UPJ obstruction in patients with VUR ranges from 1-5%, with the incidence being on the higher end in children with high-grade VUR. When significant hydronephrosis is seen in patients with VUR, one may suspect a UPJ obstruction. However, the hydronephrosis is usually secondary to the VUR as opposed to an obstructive defect. Three radiologic signs on a VCUG that might suggest the existence of UPJ obstruction in the setting of VUR are: 1) if the pelvis shows little or no filling of contrast whereas the ureter is filled with contrast; 2) contrast that does enter into the pelvis is poorly visualized because of dilution of the contrast in a large amount of retained urine; 3) poor drainage of retained contrast in the renal pelvis is seen on a drainage film. In this patient, none of these signs are present; thus, UPJ obstruction is very unlikely. In this boy, there is no dilution of the contrast in the pelvis on the VCUG. The delay that is noted on the drainage portion of the renal scan is more likely due to reduced renal function, as opposed to obstruction. In addition, drainage times on diuresis renography have not been found to directly correlate with obstruction in children. With no clear evidence of obstruction, surgery to promote drainage by either pyeloplasty or ureteropyelostomy would not be appropriate at this time. Lower pole nephrectomy is also not indicated at this age after one UTI. The next best course of action in this boy is to observe him on prophylactic antibiotics. Ureteral reimplantation would be too premature in this setting, especially in light of the patient's young age and the size of his bladder.

74. The vas deferens travels posterior along the spermatic cord then courses:
A. lateral to the epigastric vessels and anterior to the ureter.
B. lateral to the epigastric vessels and posterior to the ureter.
C. lateral to the epigastric vessels and lateral to the ureter.
D. medial to the epigastric vessels and anterior to the ureter.
E. medial to the epigastric vessels and posterior to the ureter.
ANSWER=A
The vas deferens extends from the distal end of the cauda epididymis. The vas deferens travels posteriorly along the spermatic cord, behind the vessels in the cord. The vas deferens passes through the inguinal canal and enters the pelvis lateral to the epigastric vessels. On entering the pelvis, after passing through the internal inguinal ring, the vas deferens separates from the testicular vessels. The vas deferens ultimately reaches the posterior base of the prostate after traveling anterior to the ureter and medial to the pelvic sidewall.

75. A 25-year-old transgender woman wishes to undergo bilateral orchiectomy prior to full reassignment surgery. The next step is:
A. decrease estrogen therapy.
B. offer sperm cryopreservation.
C. determination of HIV status.
D. to ensure that she has been living as a woman for at least 18 months.
E. insurance preauthorization, as this is considered elective surgery.
ANSWER=B
Hormone therapy should not be altered until after the orchiectomy and should be performed by a provider trained in transgender endocrine management. Sperm cryopreservation, either through providing a semen sample or testicular biopsy, should be offered to all male to female transgender patients. The patient should have been living as a woman for at least a year in order to experience and socially adjust to their desired gender role (i.e., holidays, various clothing requirements, etc.). It is unethical to deny surgery strictly on the basis of seropositivity for HIV, Hepatitis B or C. Orchiectomy for gender dysphoria is part of the patient's treatment, and thus is not considered elective. There are several additional reasons for consideration of orchiectomy in transgender patients including: reduction of testosterone, allowing for discontinuation of spironolactone (which has untoward side effects), and the psychological impact of the presence of

76. A pregnant woman underwent low dose non-contrast CT scan at six weeks post-conception for left flank pain. The risk to the fetus is:
A. unchanged.
B. fetal demise.
C. intrauterine growth restriction.
D. intellectual disability.
E. childhood cancer.
ANSWER=E
The radiation dose from a low dose non-contrast CT scan is well below 0.05 Gy (5 rads). Below this limit, non-cancer health effects of radiation such as fetal demise, intrauterine growth retardation, and intellectual disability are not observed at any embryonic/fetal developmental stage. These effects, however, are seen at higher doses. Stochastic effects, such as cancer risk, do not require a threshold dose and are thought to be possible at even low doses of radiation. In general, increased radiation correlates with increased cancer risk. Childhood cancer risk and lifetime cancer risk is slightly increased with this low level of exposure.

77. At the start of a photoselective vaporization of the prostate (PVP) on a 180-watt power setting, "kissing" lateral prostatic lobes are encountered. The next step is:
A. incise bladder neck at six o'clock.
B. switch to end-firing laser.
C. insert a suprapubic tube.
D. change setting to 80 watts.
E. change setting to 360 watts.
ANSWER=D
The laser fiber is a 600-micron side-firing probe and the energy that is produced by the fiber is directed at a 70-degree angle to the fiber longitudinal axis. No end-firing probes are available. Sequential vaporization occurs by sweeping the fiber along the prostate parenchyma from the inside out. A firing distance that is too close to the gland may lead to "contact vaporization" and damage the laser fiber, while a distance that is too far away from the gland may result in inefficient energy use with more tissue coagulation. Subsequently, there may be an increase in postoperative storage LUTS. If apposed or "kissing" lateral lobes are encountered at the beginning of the case, lower power (80W) should be used to minimize fiber damage. Likewise, a lower power setting may be used to create a single midline incision of the prostate or two incisions at the five o'clock and seven o'clock positions. This maneuver would allow for the bladder neck to "spring" open and level the prostate fossa with the trigone. Typically, these modifications would enable safe completion of

the PVP case without immediately switching to TURP. If visualization is poor due to decreased inflow because of obstructing prostate tissue, a suprapubic tube can be used to improve inflow and visualization but is usually not the initial step when "kissing" lateral lobes are encountered.

78. A ten-month-old infant has a left nephrectomy for stage 1 Wilms' tumor. Pathology reveals multiple nephrogenic rests in the adjacent renal parenchyma and favorable histology. Management includes standard chemotherapy and:
A. abdominal ultrasound every three months for five years.
B. MRI scan every six months.
C. CT scan every six months.
D. biopsy of the contralateral kidney.
E. XRT.
ANSWER=A
Nephrogenic rests are a foci of abnormally persistent nephrogenic cells that can be a precursor to a Wilms' tumor. They are found in 1% of infants undergoing postmortem evaluations, in 4% of multicystic dysplastic kidneys, and in 30-40% of kidneys removed for Wilms' tumor. Multiple nephrogenic rests found in the kidney undergoing resection for a Wilms' tumor implies that a similar anomaly is present in the contralateral kidney. The finding of numerous nephrogenic rests in the resected kidney is therefore associated with an increased risk of the contralateral kidney developing a metachronous Wilms' tumor, especially in infants less than one year of age. Patients found to have numerous nephrogenic rests in the resected kidney should undergo ultrasound surveillance of the contralateral kidney at three-month intervals for five years or until age seven whichever comes first. In the absence of nephrogenic rests, the follow-up is significantly less frequent due to a lower risk of metachronous tumor. There is no role for biopsy or XRT in this patient at this time.

79. One year after a midurethral sling and anterior repair, a 61-year-old woman with diabetes has hesitancy, frequency, and urgency urinary incontinence. There is no leakage with cough. Her PVR is 150 mL and urinalysis is normal. Her uroflow (voided volume 250 mL) is shown. The next step is:

"Images not available from the source"

A. antimuscarinic.
B. CIC.
C. UDS.
D. pessary trial.
E. sling incision.
ANSWER=C
The uroflow shows a classic staccato pattern of flow. This may indicate detrusor underactivity or bladder outlet obstruction. UDS should help clarify obstruction versus detrusor underactivity. Antimuscarinics would not be advised in the setting of incomplete emptying with possible outlet obstruction or with detrusor underactivity. CIC may help improve these symptoms in patients with elevated PVRs, however, this would be considered after urodynamic diagnosis of detrusor underactivity is confirmed. A pessary trial would be beneficial for prolapse or SUI, which she does not have. A sling incision may be indicated if bladder outlet obstruction is confirmed on UDS or there is a clear temporal relationship of the sling placement to the onset of her symptoms.

80. A 56-year-old woman with Crohn's disease on infliximab (Remicade®) has a recurrence of multiple low-grade Ta urothelial carcinomas of the bladder within six months of her initial TURBT. The
next step is:
A. cystoscopy in three months.
B. mitomycin C induction followed by one year of maintenance therapy.
C. BCG induction.
D. BCG induction followed by one year of maintenance therapy.
E. radical cystectomy.
ANSWER=B
The patient has multiple and recurrent Ta low-grade urothelial cancers; thus, she is at increased risk for further recurrences. According to the AUA/SUO Guideline on non-muscle invasive bladder cancer, a patient with an intermediate risk bladder cancer should receive either chemotherapy or immunotherapy with consideration of maintenance therapy if the patient has a complete response. Therefore, observation with cystoscopy in three months would not be appropriate management. This patient is on infliximab, a disease-modifying drug for her Crohn's disease. Infliximab and all anti-TNF alpha-monoclonal antibodies carry black box warnings about reactivation of tuberculosis; thus, these patients are not optimal candidates for BCG therapy. Given her multiple recurrences in a six-month period, additional treatment (i.e., vs. cystoscopy alone in three months) is warranted. The treatment course that is likely to be most effective is weekly instillations of mitomycin C for six weeks, followed by maintenance therapy. Consideration should also be given to changing the therapy of her Crohn's disease from an anti-TNF inhibitor, as these have been reported to increase the risk of malignancy, although these are primarily lymphoproliferative malignancies as opposed to solid tumors. It is premature to consider cystectomy in this patient with low-grade disease.

81. A 55-year-old man with CKD undergoing a pre-transplant evaluation has a PSA of 5.0 ng/mL and prostate adenocarcinoma with Gleason 3+3=6 in two cores. The next step is:
A. proceed with transplant evaluation.
B. defer for one year and repeat PSA.
C. MRI scan.
D. radical prostatectomy.
E. XRT.
ANSWER=A
The best treatment of prostate cancer is determined by grade, stage, estimated longevity, and patient preference. Low-risk prostate cancer should not be considered a contraindication to transplantation because, in most cases, the morbidity and mortality of having ESRD is greater. Patients with low-risk disease felt to be amenable to active surveillance should be considered candidates for transplantation as long as they adhere to their surveillance regimen. Deferring for one year is not necessary. Further work-up with MRI scan, hormonal suppression, or treatment with XRT or prostatectomy is not indicated with the low PSA and grade.

82. A 22-year-old man has a 3 mm proximal ureteral calculus. CT urogram demonstrates perirenal stranding and contrast extravasation tracking down the lateral border of the psoas muscle. He is no longer in pain. His serum WBC is 9,000/cu mm, serum creatinine is 1.2 mg/dL, and urinalysis is unremarkable. The next step is:
A. observation.
B. antibiotics.
C. ureteral stent placement.
D. PCNT.
E. ureteroscopy.
ANSWER=A
Contrast extravasation on CT in the setting of acute obstruction indicates urothelial mucosal disruption at the caliceal fornices or urine flow through the mucosa as a result of increased hydrostatic pressure. Characteristic CT findings include perinephric stranding and fluid surrounding the renal pelvis or demarcating the lateral border of the psoas muscle. Forniceal rupture decompresses the collecting system and carries no adverse prognosis. A trial of expectant management is warranted, therefore, there is no acute indication to proceed to ureteral stent placement, PCNT, or ureteroscopy. There are no signs of infection, so antibiotics are

not indicated. Medical expulsion therapy is controversial; however, recent studies have found it to be most useful for stones > 4 mm in the distal ureter.

83. A 56-year-old man is undergoing treatment with intralesional interferon alpha-2b for Peyronie's disease. Two hours after the first injection, he has penile swelling, bilateral knee pain, chills, and a temperature of 38.3° C. His Sexual Health Inventory for Men (SHIM) score is 24. The next step is ibuprofen and:

A. continue treatment as planned.
B. postpone next injection for at least four weeks.
C. blood culture and antibiotics.
D. topical steroids.
E. penile prosthesis in one month.

ANSWER=A

Patients with Peyronie's disease who are undergoing intralesional therapies should be counseled prior to beginning treatment about potential adverse events, including sinusitis, flu-like symptoms, and minor penile swelling. Unlike collagenase clostridium histolyticum, intralesional interferon has not been specifically FDA-approved for use in patients with Peyronie's disease. However, the AUA Guidelines on Peyronie's disease lists this option among the available treatments and indicates that clinicians may administer intralesional interferon alpha-2b to patients with Peyronie's disease. Patients receiving intralesional interferon should be counseled that from 40 to 100% of patients can experience sinusitis, flu-like symptoms of fever, chills, and arthralgia as well as minor penile swelling with ecchymosis. Since this patient is having anticipated routine side effects, there is no indication at this time for blood cultures and antibiotics. These symptoms should not last longer than 48 hours and may be effectively treated with over-the-counter NSAIDS that can also be started empirically prior to injection. The AUA Guidelines Panel on Peyronie's disease also recommend use of oral hydration as a helpful measure to mitigate these symptoms. The symptoms are typically transient and there is no need to delay the next injection or switch to another agent at this early stage in treatment. There is no role for topical corticosteroids or antibiotics in this commonly encountered clinical scenario. The SHIM score of 24 is consistent with mild erectile dysfunction and there is no reason to undergo penile prosthesis surgery before completing the course of conservative intralesional therapy.

84. After 24 months, prostatic urethral lift (UroLift®) compared to TURP is associated with a:

A. higher maximum flow rate.
B. lower rate of erectile dysfunction.
C. lower rate of ejaculatory dysfunction.
D. lower need for secondary treatment.
E. greater improvement in IPSS.

ANSWER=C

The BPH6 study compared prostatic urethral lift (PUL; UroLift®) and TURP. At 24 months of follow-up, the mean difference in IPSS reduction was 6.1 points, favoring TURP. Maximum flow rate was significantly higher after TURP at all follow-up intervals. Measures of erectile function were similar between groups at all time points, while ejaculatory function, based on the Male Sexual Health Questionnaire for Ejaculatory Dysfunction, favored PUL. Over the two-year follow-up, six patients in the PUL arm (13.6%) and two in the TURP arm (5.7%) underwent secondary treatment for return of LUTS.

85. During robotic-assisted radical cystectomy and intracorporeal diversion, the anastomosis to the urethra cannot be performed due to lack of neobladder mobility. The next step is:

A. change to supine position.
B. incise the peritoneum of the neobladder mesentery.
C. perform perineal pressure to push the urethral stump cranially.
D. convert to ileal conduit.
E. convert to sigmoid neobladder.

ANSWER=B

If it is difficult for the ileal neobladder to reach the urethral stump for anastomosis, the following sequential maneuvers may be attempted. First, Trendelenburg position may be reduced, which may increase the neobladder descent slightly. However, complete elimination of Trendelenburg position precludes camera visualization over bowel loops to perform the anastomosis and therefore change to supine position will not be helpful. With gentle traction to stretch the neobladder downward into the pelvis, releasing and incising the peritoneum over the mesentery will facilitate neobladder descent. Another maneuver to decrease tension includes stapling the medial/proximal portion of the mesentery with caution to avoid ischemia to the neobladder. Finally, releasing the ileum around the ileocecal region attenuates tension for the neobladder-urethra anastomosis. Performing perineal pressure to push the urethral stump cranially will not be enough to perform a tension-free anastomosis in this situation. Conversion to an ileal conduit or a sigmoid neobladder is an alternative but is not warranted without attempting the above maneuvers first.

86. A 29-year-old woman who is a Jehovah's Witness and refuses blood products has intermittent right flank pain. A non-contrast CT scan reveals a 3 cm upper pole right partial staghorn calculus without hydrocalyx. She has no history of UTIs. The next step is:

A. observation.
B. staged SWL with stent.
C. staged ureteroscopic intervention.
D. PCNL.
E. laparoscopic pyelolithotomy.

ANSWER=C

A large calculus in a Jehovah's Witness patient (or any patient refusing blood products) requires extensive discussions of treatment options and potential outcomes. Although observation is an option, the patient is symptomatic and a delay in intervention can lead to obstruction and progression of symptoms and stone size. SWL, although appearing benign, can result in steinstrasse, persistent hydronephrosis, pyonephrosis, and may ultimately require multiple interventions with poor overall stone-free rates, especially with a 3 cm stone. PCNL can be performed safely, however, has a higher risk of blood transfusion than ureteroscopic intervention. Staged ureteroscopic intervention in this complex, large, non-infectious stone is the approach with the highest chance of success and with the lowest risk for blood loss requiring transfusion, which is important for this patient. Laparoscopic surgery for this scenario is more invasive and can be considered as an option if endoscopic approaches fail. If there is a history of recurrent UTIs, further discussion with the patient regarding more invasive options (i.e., PCNL) to optimize stone clearance could be considered but must be balanced with increased risk of bleeding.

87. After an MVC, a 62-year-old woman with a GFR of 30 mL/min/1.73 m2 has a CT scan with and without contrast. Contrast-induced nephropathy would cause:

A. symptoms within one hour of injection.
B. oliguria.
C. nephrogenic systemic fibrosis.
D. increase in baseline creatinine.
E. hematuria.

ANSWER=D

Contrast-induced nephropathy typically causes a rise in the baseline serum creatinine. The etiology is most likely acute tubular necrosis secondary to vasoconstriction and the cytotoxic effects from contrast agents. The symptoms arise 24-48 hours after contrast administration. Typically, patients are not oliguric. Nephrogenic systemic fibrosis is a rare complication of gadolinium administration during an MRI scan. Hematuria, like

oliguria, can be a sign of acute interstitial nephritis, but would not be directly related to contrast-induced nephropathy that first causes a rise in serum creatinine.

88. A 43-year-old woman has recurrent calcium-based kidney stones. Her metabolic evaluation reveals hypercalciuria and hyperoxaluria with normal renal function, normocalcemia and a parathyroid hormone (PTH) level of 55 pg/mL. She is started on hydrochlorothiazide. Repeat labs reveal improvement in her hypercalciuria, hypercalcemia and a PTH level of 85 pg/mL. After discontinuing the hydrochlorothiazide, her hypercalcemia persists. The next step is:

A. observation.
B. repeat the PTH level.
C. resume hydrochlorothiazide.
D. change hydrochlorothiazide to potassium citrate.
E. parathyroid surgery.

ANSWER=E

This patient underwent a thiazide challenge. When a thiazide diuretic is started on a patient with hypercalciuria and normocalcemia, renal leak hypercalciuria can be distinguished from primary hyperparathyroidism. Hyperparathyroidism can be unmasked if the patient develops hypercalcemia that persists after the thiazide is discontinued and/or if the PTH level increases on the thiazide. In this patient, the hypercalcemia persists after the thiazide is stopped and her PTH level increased while on the thiazide; therefore, primary hyperparathyroidism has been identified which would be best treated by parathyroid surgery, not observation. The diagnosis of primary hyperparathyroidism has already been made, therefore neither repeating a PTH level, nor resuming a thiazide diuretic, nor changing to potassium citrate is indicated.

89. A 32-year-old healthy sexually active woman has foul-smelling vaginal discharge for one week. On examination, the discharge is white in appearance. The vaginal pH is 5.2 and vaginal epithelial cells covered by bacteria are noted on microscopy. The next step is:

A. observation.
B. miconazole intravaginal suppository.
C. single dose oral fluconazole 150 mg.
D. single dose oral azithromycin 1 gram.
E. topical metronidazole gel once a day for five days.

ANSWER=E

This patient has bacterial vaginosis (BV) based on her exam, vaginal pH > 5, and microscopic evaluation that demonstrated clue cells, which are vaginal epithelial cells covered in bacteria. The treatment for BV is metronidazole 500 mg twice per day for seven days, metronidazole gel intravaginally once per day for five days, or clindamycin cream intravaginally at bedtime for seven days. Fluconazole and miconazole are both appropriate treatments for vaginal candidiasis. Single dose azithromycin 1 gram is used in the treatment of nongonococcal urethritis. Single dose metronidazole 2 gram or tinidazole 2 gram orally are the treatments for trichomoniasis. This patient has BV; therefore, observation would be a suboptimal treatment option.

90. A 26-year-old man has several months of intermittent left lower abdominal pain. CT scan is shown. The next step is:

"Images not available from the source"

A. SWL with stent placement.
B. SWLin the prone position.
C. wureteroscopy.
D. PCNL.
E. laparoscopic pyelolithotomy.

ANSWER=E

Per the AUA Guidelines, laparoscopic surgery should not be offered as first-line therapy except in cases of anatomic abnormalities with large or complex stones. This patient has an ectopic, malrotated, pelvic kidney with an anterior facing renal pelvis and stones in the renal pelvis and upper pole region. The bony pelvis prevents a posterior approach to the kidney. Therefore, laparoscopic (or robotic) pyelolithotomy offers the safest, minimally invasive approach with a high success rate and stone-free rate. Since the patient is symptomatic from his stones, observation is not the best option. Based on the anatomy of his kidney and overlying bowel anteriorly and bony pelvis posteriorly, PCNL would not be safe. Additionally, the stone-free rates of ureteroscopy and SWL would be suboptimal compared to laparoscopic pyelolithotomy. SWL (often in the prone position) or ureteroscopy could be considered in select patients with ectopic kidneys and smaller stone burdens.

91. A 45-year-old woman with cystic fibrosis and lung transplant has a fever of 38.80 C, tachycardia, right flank pain, and malaise. Labs reveal serum WBC 20,000/cu mm and urinalysis with > 100 WBCs/hpf. CT urogram demonstrates right renal enlargement with a 2 cm rounded area of decreased attenuation in the upper pole. The next steps include urine and blood cultures, broad spectrum I.V. antibiotics, and:

A. observation.
B. an antifungal agent.
C. CT-guided needle biopsy.
D. percutaneous drainage of right upper pole lesion.
E. partial nephrectomy.

ANSWER=D

This patient has classic findings for a renal abscess. After starting I.V. antibiotics, the size of the abscess typically dictates management. Abscesses less than 3 cm in size can be managed by antibiotics alone. However, abscesses of all sizes in immunocompromised patients (such as our patient who has had a lung transplant) or those that do not respond to antimicrobial therapy warrant percutaneous drainage. Percutaneous drainage is the first-line procedure of choice for most renal abscesses greater than 5 cm in diameter. Large abscesses may require multiple drains, drain manipulations, and eventual surgical washout with possible need for nephrectomy. Observation with I.V. antibiotics alone is suboptimal in this immunocompromised patient. The addition of an antifungal agent would be useful if there was high suspicion for a fungal ball, which may happen in an immunocompromised patient, but is not described in this patient. A needle biopsy or aspiration may be necessary to differentiate an abscess from a hypervascular tumor, but this patient is showing signs of infection and renal abscess (lesion with decreased attenuation). Partial nephrectomy is not the next step in this patient but would be a consideration after more conservative measures had failed.

92. Twenty-four hours following SWL for a 7 x 8 mm left lower pole calculus, a 48-year-old man has hematuria and severe left flank pain that is not controlled with oxycodone. A KUB shows fragmentation of the stone without evidence of fragments along the course of the ureter. The next step is:

A. tamsulosin.
B. renal ultrasound.
C. ureteral stent.
D. renal angiogram.
E. ureteroscopy.

ANSWER=B

Intractable pain following SWL may be an indication of perinephric hematoma formation or obstructing ureteral stone fragments. All patients with a decrease in hemoglobin or significant flank pain 24 hours following SWL should be examined with imaging (renal ultrasound or CT scan) to differentiate a perinephric hematoma versus obstruction of the

collecting system. If a hematoma is suspected or identified, CT or MRI scan can be performed to evaluate the size of the hematoma and the degree of parenchymal injury. The majority of patients can be managed conservatively with careful observation of their hemodynamic status. Intravenous fluids or blood transfusions should be used to treat hypotension or severe anemia. Renal angiography should be used if there is significant bleeding that cannot be managed conservatively. If imaging demonstrates obstructing ureteral stone fragments, tamsulosin, ureteral stent placement, and/or ureteroscopic intervention may be considered.

93. Two days after a left laparoscopic radical nephrectomy for a 10 cm renal mass, a 42-year-old woman has severe left back pain refractory to ketorolac and opioids. Vital signs are stable, and hemoglobin is normal. The next step is:
A. liver function tests.
B. creatine kinase.
C. serum amylase and lipase.
D. duplex ultrasonography of the abdomen.
E. MRI scan of the spine.
ANSWER=C
The incidence of pancreatic injury is 2.1% during left radical nephrectomy. However, the majority of pancreatic injuries are diagnosed postoperatively and should always be in the differential for postoperative pain when operating on large left-sided renal masses. Given the clinical presentation shortly after surgery of severe, unremitting pain to the back, suspicion for a pancreatic injury should be high. The diagnosis of pancreatic injury is supported by the presence of an elevated serum amylase and lipase and confirmed by a CT scan of the abdomen. A serum creatinine kinase is elevated with rhabdomyolysis, which typically presents with muscle tenderness on the opposite side of the mass and dark urine. Duplex ultrasonography will not diagnose pancreatic injury. MRI scan of the spine is not necessary in this patient as musculoskeletal causes of pain would have likely improved with ketorolac and/or opioids.

94. A 57-year-old postmenopausal woman passes her second stone within one year. She has been taking calcium supplements to prevent osteoporosis. The next step is:
A. discontinue calcium supplements.
B. assess urinary calcium excretion.
C. serum calcium and parathyroid hormone.
D. bone densitometry.
E. hydrochlorothiazide.
ANSWER=B
Calcium supplements may contribute to calcium stone formation. In advising female patients on their risk for stone formation while taking calcium supplements, it is important to know both their menopausal status as well as whether or not they are hypercalciuric. Most post-menopausal women have reduced intestinal calcium absorption. Therefore, many of these individuals may not become hypercalciuric on calcium supplementation. One should analyze a 24-hour urine collection for calcium, and if the patient is normocalciuric, no limitation in calcium supplements is indicated. If the patient is hypercalciuric, one may initiate thiazide therapy to lower her urinary calcium excretion while allowing her to continue calcium supplementation. Bone densitometry will measure her degree of osteopenia or osteoporosis which will better assess if treatment is needed. To assess her calcium supplement intake, it is more useful to assess a 24-hour urine than serum calcium and parathyroid hormone levels.

95. An eight-month-old boy has lethargy, poor feeding, and low-grade fevers three days following bilateral inguinal hernia repair. He has abdominal distension on physical examination. BUN is 35 mg/dL and creatinine is 1.2 mg/dL. Ultrasound shows normal kidneys and ascites. The next step is:
A. Gastrografin® enema.
B. abdominal CT scan.
C. paracentesis.
D. cystogram.
E. renal scan.
ANSWER=D
In infants, the bladder is an intra-abdominal organ. During hernia repair, the lateral bladder wall lies close to the inguinal ring and may protrude through the ring as a ‘bladder ear’. This location may result in injury or even resection of the bladder during herniorrhaphy, resulting in urinary extravasation. This results in infection, azotemia, and urinary ascites with intraperitoneal extravasation. This patient is azotemic with findings consistent with urinary extravasation. A cystogram will confirm the diagnosis. A Gastrografin® enema, renal scan, or CT scan are not indicated based on clinical suspicion and history of hernia surgery. A paracentesis may confirm the diagnosis of urinoma, but again, the history of recent hernia surgery and a cystogram would directly confirm the proximate cause of the urinary ascites.

96. A 75-year-old man with a seizure disorder has non-metastatic castration resistant prostate cancer and a rapidly rising PSA while on leuprolide. The next step is:
A. degarelix.
apalutamide.
C. bicalutamide.
D. darolutamide.
E. enzalutamide.
ANSWER=D
The treatment of non-metastatic castration-resistant prostate cancer (nmCRPC) changed significantly following the PROSPER, SPARTAN and ARAMIS trials, all showing the addition of a next generation androgen receptor antagonist improved metastasis-free survival (MFS) in patients with nmCRPC and a PSA doubling time < 10 months (although the PSADT is not included in the package insert indications). Specifically, the PROSPER trial randomized 1401 men with nmCRPC to placebo or enzalutamide 160 mg daily. Median MFS was 36.6 months in those receiving enzalutamide vs. 14.7 months in those receiving placebo. Meanwhile, the SPARTAN trial randomized 1207 men with nmCRPC to placebo or apalutamide 240 mg daily. Median MFS was 40.4 months in those receiving apalutamide vs. 16.2 months in those receiving placebo. Further, the ARAMIS trial randomized 1509 men with nmCRPC to placebo or darolutamide 600 mg BID. Median MFS was 40.4 months in those receiving darolutamide vs. 18.4 months in those receiving placebo. Notably, darolutamide is structurally distinct from other non-steroidal antiandrogens, resulting in less penetration of the blood-brain barrier. Seizures were noted to be a potential risk in the dose escalation studies of enzalutamide, and patients with a history of seizures were excluded from the PROSPER (enzalutamide) and SPARTAN (apalutamide) trials. Preclinical studies of darolutamide did not demonstrate a pro-convulsive potential, thus such patients were included in the ARAMIS trial. No patient with a history of seizures in the darolutamide group had a seizure during the trial. In addition, the overall incidence of seizures in the trial was low (0.2%), with no difference in the incidence of seizures with darolutamide compared to the placebo group. Thus, darolutamide is the best choice for this patient with a history of seizures. There are no data supporting a benefit to switching from an LH-RH agonist (leuprolide) to a GnRH receptor antagonist (degarelix). Bicalutamide is a first-generation anti-androgen and has not been shown to provide a survival advantage in randomized trials in this clinical setting.

97. A 45-year-old man with history of previous partial nephrectomy had a contralateral radical nephrectomy. On postoperative day one he develops fever, nausea, and confusion. Blood pressure is 90/60 mmHg, and he has

abdominal tenderness. Serum Na is 130 mEq/L, K 5.4 mEq/L, creatinine 1.8 mg/dL, and hemoglobin 13 g/dL. EKG shows sinus tachycardia. In addition to I.V. normal Saline, the next step is:

A. I.V. hydrocortisone.
B. I.V. calcium gluconate.
C. I.V. mannitol and furosemide.
D. abdominal CT scan.
E. immediate re-exploration.
ANSWER=A

Adrenal crisis, or acute adrenal insufficiency, is life threatening. Signs and symptoms include abdominal pain, nausea, vomiting, fever, hypotension, tachycardia, and impaired consciousness. Misdiagnosis or delayed diagnosis of an acute abdomen is common. In adrenal crisis, lab values demonstrate hyponatremia and hyperkalemia. Hypoglycemia is more common in children than adults. Because of the history of contralateral partial nephrectomy, this patient is more at risk for adrenal crisis because of possible vascular compromise of the contralateral adrenal gland. Treatment of adrenal crisis is |.V. normal saline and hydrocortisone. Treatment with diuretics would be inappropriate with hypovolemic hyponatremia. Patients with severe hyperkalemia and/or EKG changes receive calcium gluconate to stabilize the myocardium. This patient has only sinus tachycardia and the potassium is not markedly elevated. Abdominal CT scan would not elucidate the cause of his electrolyte abnormalities but would be a reasonable option after administration of |.V. hydrocortisone. He does not have clear indications for surgical re exploration.

98. Informed consent can be characterized by preconditions, information, and:

A. decision and authorization to proceed.
B. risk assessment.
C. understanding of the care plan.
D. competence.
E. full disclosure.
ANSWER=A

Informed consent can be characterized by preconditions, information, and consent. There are three components to informed consent: 1) preconditions (composed of competence and voluntariness); 2) information (composed of disclosure of information, recommendation of the care plan, and understanding by the patient); 3) consent (composed of decision and authorization to proceed). Risk assessment is not one of the factors in informed consent, although it is important in making treatment decisions. Understanding the care plan is part of information, as is full disclosure. Competence is part of preconditions.

99. Six months after radical prostatectomy, a 65-year-old man has incontinence with cough despite Kegel exercises. Urinalysis is normal and PVR is 90 mL. The next step is:

A. pelvic floor muscle therapy (PFMT).
B. CIC.
C. mirabegron.
D. male sling.
E. artificial urinary sphincter.
ANSWER=A

Pelvic floor muscle therapy (PFMT) is pelvic floor rehabilitation which is generally directed by a pelvic floor physical therapist. PFMT is helpful even in patients who have tried pelvic floor muscle exercises (Kegel exercises) on their own and is usually recommended prior to considering surgery. Post-prostatectomy incontinence can continue to improve 6-12 months after surgery; therefore, it is recommended to wait at least that long before consideration of any anti-incontinence procedures such as the male sling or artificial urinary sphincter. CIC is not indicated as his PVR is not elevated. Beta-agonist therapy is indicated for OAB; however, this patient has SUI; thus, it would not likely be an effective therapy. If he had severe SUI that did not improve despite PFMT, he could be considered for surgical therapy as early as six months after prostatectomy.

100. A 54-year-old woman on amlodipine for hypertension has a 1.5 cm left adrenal mass. Her potassium is 4.5 mg/dL, plasma renin activity is 0.25 ng/mL/hour, and plasma aldosterone is 40 ng/dL. The next step is:

A. repeat plasma renin and aldosterone after holding amlodipine.
B. 24-hour urinary aldosterone after three days on a high salt diet.
C. adrenal vein sampling.
D. spironolactone.
E. adrenalectomy.
ANSWER=B

Primary hyperaldosteronism is an under recognized cause of hypertension. Although hypokalemia is classically described, greater than 60% of patients with a functional adenoma are normokalemic. The initial evaluation of primary hyperaldosteronism includes measurement of plasma renin activity (PRA) and plasma aldosterone to determine the aldosterone to renin ratio. Prior to screening, hypokalemia should be corrected, and potentially interfering medications stopped at least six weeks prior to testing. However, long-acting calcium channel blockers such as amlodipine have minimal effect on screening tests and do not need to be discontinued. In patients such as this, where the PRA is suppressed and the aldosterone to renin ratio is increased (> 30), primary hyperaldosteronism is suspected. A confirmatory test, such as a Salt loading test, is then recommended. Once the diagnosis of primary hyperaldosteronism is confirmed, even in the presence of a unilateral adenoma, bilateral adrenal vein sampling should be performed because an adenoma can be non-functional in up to 20% of cases and the actual cause is bilateral adrenal hyperplasia. In this case, the next step would be to confirm the diagnosis with a 24-hour urinary aldosterone after three days on a high salt diet before proceeding with localizing tests or adrenalectomy. If the cause of the patient's primary hyperaldosteronism after completion of the evaluation is not from the adenoma but rather due to bilateral hyperplasia, treatment with an aldosterone receptor antagonist, such as spironolactone or eplerenone, would be appropriate.

101. A 56-year-old woman has intermittent left flank pain. CT images are shown. The lower pole stone size is 2.2 cm with a density of 1100 Hounsfield units and a skin-to-stone distance of 9 cm. The next step is:

"Images not available from the source"

A. staged SWL without ureteral stent.
B. staged SWL with ureteral stent.
C. staged ureteroscopy.
D. PCNL.
E. robotic pyelolithotomy.
ANSWER=C

The CT scan demonstrates a large stone in the lower pole of the left kidney, however, access to the lower pole is not straightforward secondary to a retrorenal colon. In this setting, staged ureteroscopy is the safest approach with the highest efficacy, since PCNL has a high risk of injury to adjacent structures. Although the stone parameter of skin-to-stone distance is favorable for SWL, the primary factors of stone location and size are not favorable for SWL, with or without a ureteral stent, when ureteroscopy is an option. Additionally, a stone density of 1100 Hounsfield units is unfavorable for SWL. Robotic pyelolithotomy is an option; however, it is much more invasive than ureteroscopy and would not be considered first-line treatment unless there was a simultaneous need for reconstruction or in cases of larger, more complex stones with aberrant anatomy.

102. A 35-year-old healthy man is scheduled to have dilation of a 1 cm bulbar urethral stricture. Preoperative urine culture is negative. Antimicrobial prophylaxis is:
A. not recommended.
B. ciprofloxacin.
C. trimethoprim/sulfamethoxazole.
D. nitrofurantoin.
E. ampicillin.
ANSWER=C
Antimicrobial prophylaxis is recommended for all patients (even with no risk factors) who are undergoing cystoscopy with manipulation (i.e., biopsy, dilation of stricture, fulguration). According to the AUA Best Practice Statement on Urologic Surgery Antimicrobial Prophylaxis, the prophylactic antibiotics of choice are a fluoroquinolone or trimethoprim/sulfamethoxazole. Alternatives include aminoglycoside plus ampicillin, 1st/2nd generation cephalosporin, or amoxicillin/clavulanate. No antibiotics is incorrect since all patients undergoing cystoscopy with manipulation should receive prophylaxis. Ciprofloxacin is no longer the first drug of choice due to the Black Box warning and given an appropriate alternative antibiotic of choice (trimethoprim/sulfamethoxazole). Nitrofurantoin does not cover potential tissue or systemic infection. Ampicillin without clavulanate or aminoglycoside does not provide adequate coverage.

103. An eight-year-old girl is diagnosed with bladder stones after ileal augmentation cystoplasty. She manages her bladder with oxybutynin and CIC four times daily. She is dry between catheterizations and has not had UTIs. Renal ultrasound is normal. In addition to treating the stones, the next step is:
A. increase CIC frequency.
B. potassium citrate.
C. antibiotic prophylaxis.
D. initiate bladder irrigation.
E. intravesical mucolytic agent.
ANSWER=D
Bladder stone formation is a long-term complication of augmentation cystoplasty. Routine bladder irrigations avoid buildup of mucus, which can serve as a nidus for stone formation. Increasing frequency of CIC may keep the bladder less full but would not necessarily flush out the mucus. Bladder stones in this population are often infectious, but antibiotic prophylaxis would not be indicated in this patient without UTIs. Hypocitraturia is not uncommon in patients after augmentation cystoplasty, however, neither correction of underlying metabolic abnormalities nor mucolytics decrease bladder stone formation in patients who have undergone augmentation cystoplasty.

104. Three months after inflatable penile prosthesis surgery, a 56-year-old man has a fever of 39.20 C and WBC 21,000/cu mm. Pus is noted around the pump and the cylinders which are removed via a scrotal incision. Adhesions prevent removal of the reservoir through the same incision. The next step is antibiotic irrigation and:
A. salvage replacement of pump and cylinders.
B. place malleable cylinders and leave the reservoir.
C. remove the reservoir through a separate incision.
D. drain and plug the reservoir.
E. remove the reservoir through an inguinal incision and salvage replacement of all prosthesis components.
ANSWER=C
In select cases, an infected prosthesis can be removed, the location of the device washed out using an antibiotic salvage procedure, and a new device immediately placed. The advantage of this approach is the avoidance of the near certain chances of corporal fibrosis with length and girth loss that will ensue following implant removal and reimplantation at a later date. However, this approach should be restricted to men without evidence of sepsis or severe local infection. More typically, the infected device is removed, the infection is addressed with antibiotics, and the tissues are allowed to heal (for six weeks to six months). This approach has the disadvantage of corporal fibrosis, as mentioned above. This patient has systemic signs of infection as well as frank pus in the scrotum; therefore, a salvage procedure should not be performed, and the entire implant must be removed. When infection is superimposed, this can increase the level of difficulty of dissection for complete and safe removal of the reservoir. A second incision over the reservoir tubing will allow direct access to the reservoir in the retropubic space, simplifying device removal.

105. After non-artery sparing laparoscopic varicocelectomy, survival of the testis depends on blood supply from the cremasteric artery and a branch of the:
A. ilioinguinal.
B. inferior epigastric.
C. internal pudendal.
D. superior vesical.
E. posterior trunk of the internal iliac.
ANSWER=D
The testicular, deferential, and cremasteric arteries provide blood supply to the testicle and form distal anastomoses. If the testicular artery is ligated during a laparoscopic varicocelectomy, the testis can survive on blood supply from the deferential and cremasteric arteries. The cremasteric artery is a branch of the inferior epigastric artery which comes off the external iliac artery. The internal iliac artery divides into an anterior and posterior trunk. The posterior trunk of the internal iliac does not have any visceral branches. The superior vesical artery is a branch of the anterior trunk of the internal iliac and gives rise to the deferential artery. The internal pudendal is also a branch of the anterior trunk of the internal iliac, but it supplies the rectum, perineum, and external genitalia. There is an ilioinguinal nerve but not an ilioinguinal artery.

106. Despite improved urgency urinary incontinence, a 52-year-old woman has a weakened force of stream three weeks after intravesical onabotulinumtoxinA injection. PVR is 280 mL and urinalysis shows 5-10 WBC/hpf. The next step is:
A. observation.
B. tamsulosin.
C. UDS.
D. prophylactic antibiotics.
E. CIC.
ANSWER=A
Although incomplete bladder emptying (PVR > 150 mL) occurs in up to 30% of women after 100 U intradetrusor onabotulinumtoxinA injection, it is not necessary to institute CIC unless someone is significantly bothered by voiding symptoms, having recurrent UTI, or is in complete retention. Although this scenario would not be considered "chronic urinary retention (CUR), "the AUA white paper on CUR supports this approach. Similarly, medical treatment with tamsulosin is not necessary, though could be considered if she had bothersome LUTS. There is no role for UDS as her incontinence is improved. Although she has increased WBCs on her urinalysis, she does not have symptoms of a UTI and, therefore urine culture and antibiotics are not indicated. Prophylactic antibiotics could be considered if she were having recurrent UTIs refractory to non-antibiotic prevention regimens.

107. A 38-year-old woman is evaluated for intermittent right flank discomfort and recurrent UTIs. CT scan and endoscopic images of the renal pelvis are shown. The next step is:

"Images not available from the source"

A. biopsy and fulguration.
B. balloon dilation and ureteral stent.

C. laser incision and lithotripsy.
D. PCNL with fulguration.
E. laparoscopic treatment and fulguration.
ANSWER=C
The CT scan shows a stone located within a fluid filled structure in the anterior upper to mid-pole region of the right kidney, likely a calyceal diverticulum. The patient is symptomatic and has recurrent UTIs. If asymptomatic, she could be observed. However, symptoms are present, therefore treatment is recommended. SWL is generally unsuccessful for the treatment of stones within calyceal diverticula. Ureteroscopy is less invasive and can be effective for small volume stones in an upper or mid-pole diverticulum such as this case. Balloon dilation and stent placement through the ostium to the calyceal diverticulum may improve drainage out of the diverticulum but will not address the stone material in the diverticulum. Stenting though the ostium can also be performed after treating the stone in more capacious diverticula to try and improve drainage of the region in the future. PCNL is effective, however, this case is an example when ureteroscopy would be preferred based on the location of the diverticulum, the relatively small size of the diverticulum, and its anterior location. For a larger diverticulum, fulguration may also help obliterate the cavity to reduce the chance for recurrence. For an anterior calyceal diverticulum with thin overlying parenchyma, laparoscopy is the preferred option, but typically in cases where less invasive endoscopic approaches are not reasonable approaches, such as in large volume diverticula and/or larger stone burdens. Partial or heminephrectomy may be an option if the diverticulum was occupying a large portion of the kidney that has atrophied. The CT scan does not show a lesion that requires a biopsy and fulguration.

108. A 21-year-old man with Crohn's disease has a right-sided testicular seminoma with a 2.2 cm interaortocaval lymph node. Serum tumor markers and chest imaging are normal. The next step is:
A. repeat CT scan in three months.
B. PET-CT scan.
C. XRT.
D. three cycles of etoposide and cisplatin.
E. three cycles of BER
ANSWER=E
In the setting of low-volume stage 2B seminoma, either XRT (30-36 Gy, dog-leg template) or chemotherapy (IGCCCG good-risk chemotherapy options: etoposide and cisplatin x 4 cycles or BEP x3 cycles) are standards of care. Radiation therapy is contraindicated in the setting of Crohn's disease. Repeat imaging, when indicated for equivocal nodes < 2 cm, is recommended in four-eight weeks, but is not recommended if nodes are > 2 cm. Fluorodeoxyglucose (FDG)-PET/CT scan has no role in the pre chemotherapy setting.

109. A 72-year-old man with a PSA of 12 ng/mL has Gleason 4+5=9 prostate adenocarcinoma and a negative staging evaluation. He requests XRT. The next step is:
A. conventional fractionation XRT with one year LH-RH agonist.
B. conventional fractionation XRT with brachytherapy.
C. moderate hypofractionation XRT with pelvic lymph node XRT.
D. moderate hypofractionation XRT with two years LH-RH agonist.
E. ultrahypofractionation XRT with three years LH-RH agonist.
ANSWER=D
The patient has clinically high-risk prostate cancer. For patients with high/very high-risk prostate cancer, NCCN Guideline recommendations include XRT with 1.5 to 3 years of androgen deprivation therapy (ADT). Although XRT with brachytherapy and 1.5 to 3 years of ADT would also represent an option, XRT with brachytherapy would not be advised in such a patient without one to three years of ADT. The concept of hypofractionation for prostate cancer treatment is to deliver higher fraction sizes per treatment, which shortens treatment duration and thereby confers favorable implications for patient convenience, cost, and resource utilization. Specifically, conventional XRT fractionation involves a fraction size of 180 to 200 cGy, while moderate hypofractionation is defined as a fraction size between 240 cGy and 340 cGy and ultra hypofractionation is defined as a fraction size of 500 cGy. Multiple prospective randomized trials have compared moderate hypofractionation to conventional fractionation and have reported no statistically significant difference in cancer outcomes. These trials have included patients across the spectrum of disease risk, with high-risk patients comprising nearly 20% of the studied populations to date, and no evidence of a significant interaction exists between treatment effect and risk group. Accordingly, per current ASTRO/ASCO/AUA Guidelines, moderate hypofractionation should be offered to men with high-risk prostate cancer receiving external beam radiotherapy to the prostate as long as the intended treatment does not include the pelvic lymph nodes, as the clinical target volume in the majority of studies evaluating moderate hypofractionation did not include the pelvic lymph nodes. In contrast, these current Guidelines do not recommend ultra-hypofractionation for men with high-risk prostate cancer due to insufficient comparative evidence.

110. Two doses of HPV vaccine is recommended for:
A. adolescents at 9-14 years of age.
B. adults older than 26 years of age.
C. sexually active adults and adolescents less than 26 years of age.
D. immunocompromised adolescents.
E. only women less than 26 years of age.
ANSWER=A
The CDC recommends HPV vaccination for boys and girls within the ages of 9-14 years old. It is also recommended for everyone through age 26 years if they were not previously vaccinated when younger. It is not recommended for everyone older than 26 years but can be considered on an individual basis. Up until age 15, the vaccine is given on a two-dose schedule. Older individuals and those with immunocompromising conditions will get a three-dose schedule. The vaccine is meant to prevent, not treat, HPV infection so should ideally be given prior to becoming sexually active. HPV vaccine can prevent future infections that can lead to cancers of the cervix, vulva, penis, anus, and back of the throat.

111. An obese 18-year-old woman with a small distal ureteral stone has acute renal colic only relieved by an oral opioid. An appropriate emergency room discharge prescription is:
A. extended-release hydrocodone 10 mg by mouth BID (six tablets).
B. extended-release oxycodone 20 mg by mouth BID (12 tablets).
C. hydrocodone-acetaminophen 5 mg/325 mg by mouth every six hours as needed (12 tablets).
D. oxycodone-acetaminophen 5 mg/325 mg by mouth every six hours as needed (60 tablets).
E. tramadol 50 mg by mouth every six hours as needed (12 tablets).
ANSWER=C
Patients who receive opioids for acute pain are at increased risk for long-term use. The risk of long-term use is increased if initial opioid prescription is high dose, extended release/long acting, or for a lengthy duration. Extended-release formulations should not be prescribed. Acute pain is sometimes severe enough to warrant a brief course of opioid therapy. The CDC recommends that three days of medication is usually sufficient for acute pain. A reasonable patient for opioid therapy is someone with an acute, painful condition that has not responded to non-opioid treatment, no evidence of a current or previous drug problem, and an unremarkable prescription drug monitoring program (PDMP) search. Both oxycodone-acetaminophen and hydrocodone-

acetaminophen are reasonable for three days (12 tablets). Tramadol is contraindicated in adolescents between 12 18 years of age who are at increased risk for respiratory depression (obesity, obstructive sleep apnea, severe lung disease).

112. A 250 ug dose of intraurethral prostaglandin is planned for the first in-office testing of a 45-year-old man with erectile dysfunction. Prior to proceeding with the test, he states that he is on sublingual nitroglycerin for occasional angina. The next step is:

A. void prior to usage.
B. walk or stand for ten minutes to aid in blood flow.
C. place applicator stem into the urethra.
D. select 100 ug dose.
E. avoid intraurethral prostaglandin within 24 hours of nitroglycerin use.

ANSWER=A

Initial dose titration in the office and detailed counseling regarding possible adverse events should be undertaken prior to prescribing intraurethral alprostadil. The testing dose selected by the clinician should be one that would be expected to produce an erection satisfactory for intercourse; the 100 ug dose would likely be less effective and there is no evidence that it would be safer in this patient. There is no contraindication for intraurethral alprostadil usage in patients who are on nitrates. The patients are asked to void prior to applicator stem insertion as the former aids in applicator insertion as well as in dispersal and dissolution of the medicine along the urethra. Rolling the penis between the hands as well as walking or standing for ten minutes to aid in blood flow are steps that are taken after the patient has voided and the pellet has been inserted.

113. A 45-year-old woman has bilateral stents for hydronephrosis secondary to retroperitoneal fibrosis. CT scan is shown. She cannot tolerate steroids. The next step is:

"Images not available from the source"

A. azathioprine.
B. mycophenolate mofetil (CellCept®).
C. tamoxifen.
D. cyclophosphamide.
E. ureterolysis.

ANSWER=C

The clinical presentation is consistent with idiopathic retroperitoneal fibrosis. The CT scan reveals a retroperitoneal mass encasing the aorta, IVC, and bilateral ureters. After initial ureteral stenting to relieve obstruction and consideration for biopsy to rule out malignancy, medical treatment should be considered first prior to ureterolysis. First-line medical treatments include steroids or tamoxifen (a nonsteroidal antiestrogen). Mycophenolate mofetil, azathioprine, or cyclophosphamide can also be used as primary or salvage therapy, but those agents are used in combination with steroids. Their stand-alone efficacy is unknown. Ureterolysis can be undertaken if medical therapy fails.

114. Six months after placement of an artificial urinary sphincter, a 70-year-old man has recurrent SUI. He has a 4.5 cm cuff and a 61-70 cm H20 pressure-regulating balloon (PRB). Physical examination and cystoscopy reveal no evidence of infection, no cuff erosion, and no urethral coaptation with cycling of the device. The next step is:

A. UDS.
B. ultrasound of PRB.
C. change to a 71-80 cm H20 PRB.
D. downsize to 4.0 cm cuff.
E. replace cuff, pump, and PRB.

ANSWER=B

Recurrent or worsening urinary incontinence after artificial urinary sphincter (AUS) placement may result from either stress urinary incontinence (SUI), urgency urinary incontinence (UUI), or a combination of the two. If there is a strong UU] component that does not respond to first-line treatment, then UDS may be helpful. If history and physical exam are consistent with SUI, and there is no obvious findings on examination to suggest a cause or infection, then cystoscopy should be performed. If urethral erosion is detected, then explantation of the entire device is warranted. If no erosion is seen, then ultrasound or other cross-sectional imaging of the pressure-regulating balloon (PRB) should be performed. If the PRB is full (approximately 24 mL), then device revision is indicated, and options may include moving or downsizing the cuff, placing a tandem or transcorporal cuff, or increasing the PRB pressure. If the PRB is empty or under-filled on ultrasound, then a leak somewhere in the AUS tubing or components is suspected and the entire device (cuff, pump, and PRB) should be replaced. Because this AUS failed less than two years after it was placed, one option would be to determine which component of the device has failed (i.e., with an ohmmeter), then the specific component that leaked can be replaced and the AUS PRB refilled with the appropriate amount of fluid.

115. A 61-year-old woman has an incidental 2.5 cm adrenal mass that is 25 Hounsfield units on pre-contrast CT scan and demonstrates 70% washout after contrast administration. Metabolic evaluation is negative. The next step is:

A. repeat CT scan in six months.
B. gadolinium-enhanced MRI scan.
C. gallium-68 dotatate PET scan.
D. biopsy.
E. adrenalectomy.

ANSWER=A

While adrenal masses that are < 10 Hounsfield units (HU) on unenhanced CT scan are consistent with adenomas, approximately 30% of adenomas have a low lipid content and will therefore demonstrate an attenuation > 10 HU. When such incidental, non-functional lesions are identified, further evaluation includes CT scan with washout protocol, obtaining 1-minute and 15-minute (delayed) post-contrast images. Lipid-poor adenomas will exhibit rapid washout of enhancement, such that an absolute percentage washout (enhanced-delayed/enhanced-unenhanced x 100) of > 60% is indicative of an adenoma. For non-functioning adenomas of this size (< 4 cm), surveillance (rather than adrenalectomy) with reimaging at 6, 12, and 24 months has historically been recommended to assess for lesion growth as a marker of potential malignancy. Notably, more recent guidelines from Europe have suggested that no further follow-up is necessary for patients with < 4cm lesions that are metabolically inactive and exhibit benign images features. However, of the answer choices provided herein, a repeat CT scan in six months would be appropriate. MRI scan would not, in this case, add incremental information and would therefore not be indicated; moreover, gadolinium-enhanced washout studies do not provide the same level of diagnostic discrimination as CT washout for adrenal adenomas and are thereby not recommended in clinical practice. Meanwhile, gallium-68 dotatate PET has emerged as the preferred imaging modality in the work-up of pheochromocytoma/paraganglioma, as dotatate has a high affinity for the somatostatin surface receptor and thereby facilitates detection of multifocal/metastatic disease. Herein, however, with a negative metabolic evaluation and CT washout study consistent with an adrenal adenoma, PET would not be indicated. Biopsy may be useful when metastatic disease is suspected (after a negative metabolic evaluation), but cannot reliably distinguish adrenal adenomas from carcinomas, and would not be indicated with the radiographic characteristics as here consistent with adenoma.

116. The potentially life-threatening metabolic abnormality associated with distal RTA is:

A. hyperchloremia.
B. hypercalcemia.
C. hyperkalemia.

D. hypocalcemia.
E. hypokalemia.
ANSWER=E
Patients with distal RTA may demonstrate hyperchloremic metabolic acidosis if they have the complete form of RTA. These patients can often be identified by their serum electrolyte abnormalities which include hypokalemia, hyperchloremia, and reduced serum bicarbonate. Hypokalemia (most commonly seen with complete distal RTA), not hyperkalemia, remains the most life-threatening of the metabolic abnormalities found in patients (particularly infants) with distal RTA. There are no significant changes to serum calcium noted with distal RTA that can be life-threatening.

117. A 40-year-old man has weak stream ten years after a urethroplasty. A retrograde urethrogram shows a 3 cm bulbar urethral stricture recurrence. The next step is:
A. direct vision internal urethrotomy.
B. dilation followed by self-catheterization.
C. staged urethroplasty with buccal graft.
D. dorsal onlay urethroplasty with buccal graft.
E. fasciocutaneous flap urethroplasty.
ANSWER=D
The patient presents for treatment of a recurrent urethral stricture. Given that the stricture is greater than 2 cm, direct vision internal urethrotomy would not be the first line therapy. Similarly, while dilation and self-catheterization can be offered to patients who are not candidates for urethroplasty, there is no reason to believe this patient would not be a urethroplasty candidate given his age. When feasible, single stage repairs are preferred because they provide similar long-term outcomes with fewer operations than staged repairs. Buccal mucosa is the preferred graft material for urethroplasty. While fasciocutaneous flap could be appropriate here, dorsal onlay with buccal is preferred because the postoperative complication profile, patient satisfaction and long term success rates are superior to fasciocutaneous flap urethroplasty.

118. A 70-year-old woman has urine leakage "all of the time" which she cannot relate to urgency or activity. She does not have a history of pelvic surgery or XRT. Urinalysis shows 4 WBC/hpf, 2 RBC/hpf, and PVR is 45 mL. On examination, she has loss of urine with cough, vaginal atrophy, and normal vaginal support. The next step is:
A. vaginal estrogen.
B. CT urogram.
C. UDS.
D. cystoscopy.
E. midurethral sling.
ANSWER=C
Though she has a positive cough stress test, it is difficult to make a definitive diagnosis based on symptoms and initial evaluation, especially since she does not have classic symptoms of stress incontinence. Therefore, additional urodynamic evaluation should be considered before proceeding with surgical intervention, such as a sling. According to the AUA/SUFU Female SUI Treatment Guidelines, cystoscopy should not be performed unless there is a concern for urinary tract abnormalities. A CT urogram would be appropriate if a genitourinary fistula was suspected, however she does not have any risk factors for a fistula. Vaginal estrogen can be beneficial in a postmenopausal woman with atrophy and genitourinary symptoms of menopause, including vaginal dryness, itching, urinary urgency, and frequency; however, it has not been shown beneficial in treating urinary incontinence.

119. A 47-year-old man with relapsing remitting multiple sclerosis (MS) has severe urinary frequency and incontinence. He has been treated with tamsulosin for six months with no improvement inhis symptoms. Examination reveals a 40 gram smooth prostate. UDS is shown. The next step is:

"Images not available from the source"

A. renal ultrasound.
B. videourodynamics.
C. MRI scan of the spine.
D. TRUS.
E. cystoscopy.
ANSWER=A
This UDS documents neurogenic detrusor overactivity and detrusor external sphincter dyssynergia (DESD) in a patient with MS. Male MS patients with DESD appear to be at greatest risk for urological complications including upper tract deterioration and the upper tracts must be assessed early in this patient. At this time, videourodynamics would be redundant and unnecessary, while cystoscopy is unlikely to influence treatment planning and would not be the most appropriate first step. MRI scan of the spine may be indicated in the scenario of unknown pre-existing neurogenic disease but is unnecessary with a diagnosis of MS. His obstruction appears to be secondary to DESD, so there is no reason to size his prostate with a TRUS for a subsequent outlet procedure.

120. A 64-year-old man has a PSA of 5 ng/mL and a normal DRE. A 12-core biopsy is negative, and his prostate volume is 95 grams. Six months later, his PSA is 6.2 ng/mL. Representative images from a multiparametric MRI are shown (T2 and DWI). The next step is:

"Images not available from the source"

A. PSA in three to six months.
B. Decipher® genomic test.
C. targeted biopsy of right peripheral zone.
D. systematic plus targeted biopsy of right peripheral zone.
E. systematic plus targeted biopsy of left peripheral zone.
ANSWER=A
The T2 and DWI MRI images show no focal lesions within the prostate. As the patient has a low PSA density (0.06 ng/mL), a recent negative 12-core biopsy, and an MRI without a focal lesion, he is at low risk of having a clinically significant prostate cancer. In particular, without a suspicious area on MRI scan, neither targeted biopsies nor an additional 12-core biopsy would be appropriate. The patient should have a repeat PSA in three to six months. The Decipher genomic test is a tissue-based prognostic biomarker used following the diagnosis of prostate cancer.

121. An 80-year-old woman in a nursing home has > 100,000 CFU/mL E. coli in routine urine culture. She denies fever, dysuria, or other urinary symptoms. PVR is 150 mL. The next step is:
A. observation.
B. antibiotics.
C. renal ultrasound.
D. UDS.
E CIC.
ANSWER=A
Asymptomatic bacteriuria is common in the elderly and does not require antibiotics treatment in the absence of UT] symptoms. The PVR of 150 mL does not justify the use of UDS or CIC. Upper tract imaging and cystoscopy are not indicated in a patient without a significant past medical history and is not indicated in the evaluation of asymptomatic bacteriuria. The AUA UTI Guideline (2019) state that clinicians should not treat asymptomatic bacteriuria (Statement 8). The correct answer is observation.

122. When performing a nerve-sparing radical prostatectomy, the surgeon must not injure nerves within the:
A. endopelvic fascia.

B. lateral prostatic fascia.
C. levator ani fascia.
D. Denonvilliers' fascia.
E. obturator fascia.
ANSWER=B
The cavernosal nerves, branches of the parasympathetic plexus, travel within the lateral prostatic fascia, also known as the parietal pelvic fascia, and are located posterolateral to the prostate. Nerve bundles are noted traveling along the prostate laterally and anteriorly as well. The endopelvic fascia blends with the prostatic capsule and also connects with the levator ani fascia, but neither carries the cavernosal nerves. Denonvilliers' fascia lies between the posterior wall of the prostate and rectum, and nerves do not course through this plane. The obturator fascia is the fascia of the internal obturator muscle and is not associated with the cavernosal nerves.

123. A 67-year-old man with newly diagnosed Gleason 4+5=9 prostate cancer has a biopsy-confirmed humeral metastasis and six lesions on bone scan. He is asymptomatic and CT scan of the chest, abdomen, and pelvis is negative. He is started on leuprolide and enzalutamide. The next step is:
A. 18F-fluciclovine PET scan.
B. germline testing.
C. prostate XRT.
D. radium-223.
E. cabazitaxel.
ANSWER=B
This patient has metastatic hormone-sensitive prostate cancer (MHSPC). Guidelines recommend he be offered genetic counseling and germline testing regardless of age and family history, as approximately 12% of patients with metastatic prostate cancer have inherited DNA repair mutations. Indeed, the finding of alterations in homologous recombination DNA repair (i.e., BRCA, ATM), microsatellite instability, or deficient mismatch repair (MMR) may be utilized to guide future therapy. For example, PARP inhibitors have been demonstrated to improve survival in patients with metastatic castration-resistant prostate cancer (mCRPC) who have mutations in DNA repair enzymes. Similarly, it has been suggested that platinum-based chemotherapy may improve outcomes in these patients. Local treatment to the prostate with XRT (in addition to androgen deprivation therapy) may be considered for select MHSPC patients with low-volume metastatic disease, based on a subgroup analysis from the STAMPEDE trial demonstrating a survival benefit. However, the patient here would be classified as having high-volume metastatic disease, which is defined as greater than or equal to four bone metastases with at least one metastasis outside of the spine/pelvis and/or the presence of visceral metastases, and thus, local therapy to the prostate is not recommended (unless it is a clinical trial), particularly in an asymptomatic patient. The role of novel PET scans (i.e., fluciclovine or PSMA-based) for patients with advanced prostate cancer continues to evolve. Fluciclovine's FDA approval was for patients with suspected recurrence after treatment, and such studies may be of utility for patients with a rising PSA after therapy and negative conventional imaging. For patients with metastases documented on conventional imaging, the value of such advanced imaging remains undetermined. The decision to obtain novel PET scans in this setting should incorporate consideration of the likelihood that incremental information derived from the scan would meaningfully influence subsequent management. For this patient with high volume metastatic disease determined on conventional imaging, the options for treatment are unlikely to be impacted by an 18F-fluciclovine PET scan, and thus the study would not be necessary to obtain. Radium-223 is indicated for patients with mCRPC and symptoms from bone metastases in the absence of visceral disease or lymphadenopathy > 3 cm, and thus should not be used here in the patient with hormone-sensitive, asymptomatic disease. Likewise, cabazitaxel represents an option for mCRPC patients who have received prior docetaxel chemotherapy but would not be indicated herein.

124. A 42-year-old woman with macular degeneration has persistent urinary frequency and suprapubic pain despite oxybutynin and decreasing caffeine intake. A voiding diary shows appropriate fluid intake and daytime voids every 45 minutes. Physical examination is unremarkable, PVR is 50 mL, and urinalysis is negative. The next step is:
A. amitriptyline.
B. pentosan polysulfate.
C. onabotulinumtoxinA injection.
D. UDS.
E. cystoscopy.
ANSWER=A
This patient meets the definition for uncomplicated bladder pain syndrome as described in the AUA/SUFU Interstitial Cystitis/Bladder Pain Syndrome Guidelines. First line treatment includes education, behavioral modification, and stress management practices. Second line treatment includes manual pelvic floor physical therapy techniques as appropriate and oral medications including: amitriptyline, cimetidine, hydroxyzine, pentosan polysulfate (PPS), and intravesical instillation. Multimodal therapy is often required. Cystoscopy with hydrodistention and onabotulinumtoxinA are third- and fourth-line therapies, respectively, and would not be provided before the aforementioned oral therapies. Cystoscopy would not be indicated in the initial evaluation of patients with symptoms of bladder pain syndrome and a normal urinalysis. PPS is the only FDA approved oral agent for interstitial cystitis. Its use has recently been linked to a vision-threatening macular condition known as pigmentary maculopathy. This is characterized by difficulty reading and adjusting to dim lighting. Studies have shown that chronic use of PPS is associated with pigment retinopathy which oftentimes is misdiagnosed as age-related macular degeneration. Use of PPS should be used with caution and would be contraindicated in this patient who already has macular degeneration. Patients should be counseled about the potential association with this condition, and it should be prescribed at the lowest dose and for the shortest duration possible.

125. A 62-year-old man with a PSA of 5.9 ng/mL and normal prostate MRI scan is diagnosed with Gleason Score 3+3=6 adenocarcinoma and elects active surveillance. Two years later, his PSA is 6.3
ng/mL. The next step is:
A. ConfirmMDx®.
B. Decipher®.
C. multiparametric MRI scan.
D. repeat prostate biopsy.
E. PSA, DRE, and MRI scan in one year.
ANSWER=D
According to AUA Guidelines, localized prostate cancer patients electing management with active surveillance should be encouraged to have a confirmatory biopsy within two years of initial diagnosis. Further, while guidelines indicate that MRI scan may be considered as a component of active surveillance, data does not support using MRI to replace confirmatory biopsy. Basing the decision for repeat biopsy in men on active surveillance solely on changes in MRI parameters can miss a significant proportion of higher-grade disease. A recent AUA Policy Statement asserted "the current information about mp [multi-parametric] MRI is not sufficient to support a role for repeat mpMRI in the absence of any confirmatory biopsy for monitoring men on active surveillance." Thus, in this patient diagnosed two years ago and managed with active surveillance, repeat prostate biopsy, rather than PSA/DRE/MRI in one year, should be undertaken. Moreover, the AUA Guidelines state, "Tissue based genomic biomarkers [such as Decipher®] have not shown a clear role in active surveillance for localized prostate

cancer and are not necessary for follow-up." Indeed, genomic biomarker testing of the patient's biopsy tissue after two years on active surveillance would be unlikely helpful in guiding management. ConfirmMDx® is indicated for men without prostate cancer, a previously negative biopsy, and ongoing suspicion for a clinically meaningful prostate cancer. Decipher® genomic biomarker can be used in men with low-risk prostate cancer to determine suitability for active surveillance but would be indicated early after diagnostic biopsy, not two years later.

126. The optimal technique for water vapor thermal therapy (Rezum®) for an enlarged prostate requires:
A. vapor needle deployment at the 3 o'clock and 9 o'clock positions.
B. vapor needle placement at the bladder neck.
C. 30cm between vapor needle injection sites.
D. sterile water irrigation for urethral surface cooling.
E. avoidance of the median lobe.
ANSWER=A
Water vapor thermal therapy (Rezum®) utilizes convective radiofrequency power to generate thermal therapy in the form of water vapor injected transurethrally into the transition zone of the prostate. It has been shown to be effective and is indicated for men with prostate volumes between 30 mL and 80 mL. Furthermore, water vapor therapy can be done as an outpatient office procedure and does not result in ejaculatory dysfunction unlike surgical techniques such as TURP or laser procedures. The other technique that does not result in ejaculatory dysfunction is the prostate urethral lift (UroLift®), but unlike Rezum®, UroLift® is not indicated in patients with large median lobes. The optimal technique for water vapor therapy starts at the 3 and 9 o'clock positions 1 cm distal to the bladder neck and uses normal saline for enhanced visualization and urethral surface cooling. The injection sites are 1 cm apart, allowing contiguously overlapping thermal lesions. The technology is targeted for patients wishing to preserve sexual function and may be modified for patients with a median lobe.

127. A 61-year-old man with a continent catheterizable urinary diversion for spina bifida had a negative prostate biopsy one year ago for a PSA of 5 ng/mL. His PSA is now 7.4 ng/mL and DRE is normal. To determine whether a repeat biopsy is warranted, the best test is:
A. Prolaris®.
B. Decipher®.
C. Oncotype Dx®.
D. SelectMDx®.
E. ConfirmMDx®.
ANSWER=E
For men with a previously negative prostate biopsy, there are several available biomarkers to risk-stratify the likelihood of detecting high-grade cancer on repeat biopsy, including serum (4kScore®, prostate health index [PHI]), urinary (PCA3®, ExoDx®, and Select MDx®), and tissue (Confirm MDx®). In addition, MRI imaging may be used in this setting as well. Confirm MDx® (epigenetic evaluation of hypermethylation in three genes) evaluates prostate tissue from the previous negative biopsy (within prior 30 months) to predict the likelihood of cancer on a subsequent biopsy. Select MDx® evaluates mRNA in the urine after DRE, but since this man has a urinary diversion, his urine would not contain MRNA from his prostate. Decipher® (Mrna expression of 22 genes), Prolaris® (mRNA expression of cell cycle progression genes), and Oncotype Dx® are biopsy-based genomic tests available after the diagnosis of prostate cancer to predict the likelihood of adverse pathology, metastasis or cancer-specific mortality, but are not indicated prior to the diagnosis of prostate cancer.

128. A 16-year-old boy has bilateral epididymal tenderness. He has no dysuria or urethral discharge. He has a recent history of insertive anal intercourse. The next steps in diagnosis should include urine nucleic acid amplification testing and:
A. uroflowmetry.
B. renal ultrasound.
C. serology.
D. bacterial urine culture.
E. urethral swab culture.
ANSWER=D
Among sexually active men < 35 years old, acute epididymitis is most frequently caused by Chlamydia trachomatis and Neisseria gonorrhoeae. First-void urine is the preferred specimen for nucleic acid amplification testing (NAAT) for these organisms. Acute epididymitis can also be caused by sexually transmitted enteric organisms in men who are the insertive partner during anal intercourse. Bacterial urine culture is indicated for men older than 35 years, a recent history of insertive anal intercourse, or presence of obstructive urinary pathology. Urethral swab culture has largely been replaced by NAAT. Urethral swab culture is obtained to look for antibiotic susceptibility in patients who have received CDC-recommended treatment but continue to have a positive NAAT result. Serologic testing is used for genital herpes and syphilis which do not cause epididymitis. Renal ultrasound would be indicated for recurrent epididymitis in childhood which may be due to an ectopic ureter. In the absence of urinary symptoms, he is unlikely to have any bladder outlet pathology, and uroflowmetry would not be indicated.

129. A 45-year-old man is started on a daily selective serotonin reuptake inhibitor (SSRI) for premature ejaculation. Addition of start-stop or sensate focus therapy will:
A. be unnecessary after initiation of SSRI therapy.
B. not require a specialist in psychosexual therapy.
C. increase ejaculatory latency by about one minute.
D. help control ejaculation by avoiding non-coital stimulation.
E. increase anxiety.
ANSWER=C
Behavioral strategies, including start-stop, squeeze, and sensate focus, have been studied in combination with pharmacological approaches to increase ejaculatory latency time (ELT) and sexual satisfaction beyond that resulting from pharmacological treatment alone. Several studies have shown that the inclusion of behavioral therapies increases ejaculatory latencies by about one minute over pharmacological therapy alone. Patient-reported outcomes such as sexual satisfaction, anxiety, and partner satisfaction also improve. Other studies have suggested that incorporation of psychobehavioral intervention increases ELT an additional one to three minutes compared to pharmacotherapy alone. Combination therapy is also associated with greater improvement in scores on validated instruments for the assessment of premature ejaculation. In these studies, combination treatments lasted from 1.5 to 6 months and the frequency of therapy ranged from several hours to sixteen two-hour sessions. Sensate focus, in particular, helps men and couples broaden their sexual repertoire to include more foreplay by ameliorating fear that prolonged non-coital stimulation will lead to ejaculation. Sensate focus may allow the man to discover the pleasures of foreplay while maintaining ejaculatory control. Although trials of combination therapies have focused on behavioral strategies as a means of lengthening ELT, incorporation of cognitive-behavioral therapy may also improve sexual satisfaction by expanding the couple's sexual behavioral repertoire, improving communication, and addressing relationship dynamics. Psycho-behavioral therapies impart no significant AEs, but typically require a specialist in psychosexual therapy and may not be covered by insurance.

130. An eight-year-old boy with spina bifida and a ventriculoperitoneal shunt undergoes ileocystoplasty. On postoperative day three, he has abdominal discomfort, fever

of 38.5° C, and tachycardia. His urine output through the suprapubic tube markedly decreased over the last shift. The next step is:
A. cystogram.
B. shunt series.
C. antibiotics.
D. I.V. fluid bolus.
E. suprapubic tube irrigation.
ANSWER=E
After enterocystoplasty, continuous bladder drainage is achieved via a suprapubic tube. Mucus production can be excessive and can potentially occlude the catheter. The suprapubic tube should be irrigated on a schedule postoperatively and as needed when urine drainage slows. An I.V. fluid bolus would be inappropriate before making sure that the bladder is draining. A cystogram would likely reveal the occluded catheter but is unnecessary. Although shunt malfunction/infection is possible since the shunt is in the surgical field, his symptoms do not suggest any problems with the shunt. In the early postoperative period, fever is usually due to non-infectious causes. Empiric antibiotic treatment should be started for postoperative fever if clinical assessment suggests infection as the likely cause.

131. A 30-year-old healthy man with azoospermia has a semen volume of 2 mL. On examination, the size of each testis is 10 mL. Serum FSH is 19 IU/L, testosterone is 270 ng/dL, and prolactin is 40 ng/mL. The next step is:
A. karyotype.
B. cystic fibrosis receptor testing.
C. pseudoephedrine.
D. pituitary MRI scan.
E. TRUS.
ANSWER=A
This patient has hypergonadotropic hypogonadism, with atrophic testes, elevated serum FSH, low testosterone, and mildly elevated prolactin. This is indicative of non-obstructive azoospermia. The evaluation includes genetic testing, including karyotype and Y chromosome microdeletion analysis. Cystic fibrosis testing is not indicated, as he has a normal semen volume, and thus, does not have absent vas deferens or seminal vesicles. Pseudoephedrine can be used to manage retrograde ejaculation, but there is no evidence of this with a normal ejaculate volume. Mild elevation of prolactin levels between 20 to 50 ng/mL does not warrant further evaluation with MRI scan to evaluate for a pituitary tumor, which typically demonstrates prolactin levels > 80 ng/mL and suppressed FSH and LH levels. TRUS is not indicated with normal semen volume.

132. A 49-year-old asymptomatic woman with no smoking history has 5 RBC/hpf on urinalysis six months after electing surveillance for a urinalysis which demonstrated 10 RBC/hpf. She has no history of gross hematuria. The next step is:
A. repeat urinalysis within six months.
B. repeat urinalysis annually for three years.
C. white light cystoscopy and renal ultrasound.
D. enhanced cystoscopy and CT urogram.
E. white light cystoscopy with bilateral retrograde pyelograms.
ANSWER=C
The AVA Guidelines define microhematuria as the presence of greater than or equal to three RBC/hpf on a single urine specimen. Based on the AUA Microhematuria Risk Stratification System, this patient would initially have been classified as low risk for genitourinary malignancy based on age (women < 50 years old), absence of symptoms, absence of a smoking history, and degree of microhematuria (3-10 RBC/hpf on a single urinalysis). Patients classified as low risk for genitourinary malignancy may, according to the Guidelines, decide to repeat a urinalysis within six months (or undergo evaluation with cystoscopy and renal ultrasound). The presence of persistent microhematuria at the time of repeat urinalysis then results in the patient being re-classified into either the intermediate or high risk categories based on the degree of microhematuria noted at the time of repeat urinalysis. This patient would be classified in the intermediate risk category for genitourinary malignancy based on the presence of 3-10 RBC/hpf on repeat urinalysis. The Guidelines recommend evaluation for intermediate-risk patients (i.e., rather than just subsequently repeating a urinalysis), specifically with a cystoscopy and renal ultrasound. Notably, white light cystoscopy is specifically advised by the Guidelines for microhematuria evaluation, due to the lack of current evidence supporting a role for enhanced cystoscopy in patients without a known bladder cancer diagnosis. Moreover, while CT urogram is recommended as a component of the evaluation for patients classified as high-risk for genitourinary malignancy, given the overall low rate of upper tract urothelial carcinoma among microhematuria patients, as well as the potential harms and cost associated with CT urogram, the 2020 AUA Guidelines Panel recommended a risk-based approach to microhematuria evaluation using renal ultrasound for intermediate-risk patients and CT urogram for high-risk patients. Similarly, the Guidelines state that retrograde pyelography may be utilized for patients classified as high-risk who have contraindications to multiphasic CT urography and MR urography. Moreover, retrograde pyelography does not provide imaging of the renal cortex, and so when cystoscopy with retrograde pyelography is utilized, then either non-contrast axial imaging or renal ultrasound should be performed as well.

133. A 24-year-old man with azoospermia and an ejaculate volume of 0.5 mL has a palpable left vas deferens and a non palpable right vas deferens. Both testes are normal in size and a renal ultrasound demonstrates normal kidneys bilaterally. The next step is:
A. cystic fibrosis gene testing.
B. karyotype.
C. seminal fructose.
D. scrotal ultrasound.
E. testicular biopsy.
ANSWER=A
This patient likely has a variant of congenital bilateral absence of the vas deferens (CBAVD). It is possible to have a palpable scrotal vas deferens with absence of the inguinal portion and seminal vesicles. This is evidenced by his low volume azoospermia. Karyotype is not indicated in this patient with likely obstruction. Scrotal ultrasound will not help delineate the non-palpable vas deferens and will not help with the diagnosis. A testicular biopsy will confirm normal spermatogenesis but will not determine where the obstruction is or even identify the missing structures. Seminal fructose would confirm the absence/obstruction of seminal vesicles but not identify the etiology.

134. A three-month-old girl with antenatal hydronephrosis has persistent severe right pelvicaliectasis and no ureteral dilation on postnatal ultrasound. The left kidney is normal. A diuretic renal scan shows 48% differential function and 11/2 of 27 minutes on the right. The next step is:
A. MRurography.
B. repeat renal ultrasound in three months.
C. retrograde pyelography.
D. ureteral stent placement.
E. pyeloplasty.
ANSWER=B
This patient has delayed drainage based on mildly elevated T1/2 (greater than 20 minutes is considered abnormal) with retained renal function. The delayed drainage may be from reservoir effect alone, or there could be some dysfunction or obstruction of the UPJ. MR urography would offer both anatomical and functional information that might help confirm the presence of UPJ obstruction, but the retained renal function on the renal scan is not consistent with a severely obstructed kidney. Infants also require

anesthesia to achieve adequate MR urography results. Similarly, a retrograde pyelogram would outline the anatomical findings but expose the patient to general anesthesia. Managing this with ureteral stent placement at this time is not indicated given the excellent differential relative renal function but may be of use in equivocal cases when they are followed by a renal scan to assess a change in renal function. Indications for pyeloplasty include worsening dilation on repeat ultrasound, low or decreasing renal function, urinary tract infections, urolithiasis, or symptoms such as severe flank pain. Infants may also have feeding difficulties or failure to thrive. The majority of cases resolve over time and will not require surgical intervention. Therefore, patients who do not meet indications for immediate surgery should be observed with serial ultrasound and/or repeat renal scan.

135. Proper positioning of the needle for percutaneous tibial nerve stimulation is associated with:
A. ankle dorsiflexion.
the lateral malleolus.
C. the head of the fibula.
D. tickling sensation in the sole of the foot.
E. tickling sensation of the medial leg.
ANSWER=D
According to the 2019 AUA/SUFU Guideline statement, percutaneous tibial nerve stimulation (PTNS) is a third line treatment for OAB. The tibial nerve is a branch of the sciatic nerve which is made of fibers from L4 through S3 spinal roots. Stimulation of the tibial nerve causes "cross-talk" with the sacral fibers to the bladder. Optimal PTNS positioning causes flexion of the great toe and tickling of the sole of the foot due to efferent and afferent effects. The tibial nerve travels behind the medial malleolus of the ankle; the needle for PTNS is placed about 3 to 4 cm cephalad to the medial malleolus.

136. A 68-year-old woman with a several month history of lower extremity edema has the MRI scan shown. Laboratory studies are normal and CT scan of her chest demonstrates two 4 mm pulmonary nodules. Percutaneous biopsy demonstrates papillary RCC. The next step is systemic anticoagulation plus:

"Images not available from the source"

A. cabozantinib.
B. ipilimumab and nivolumab.
C. percutaneous IVC filter placement and renal artery angioembolization.
D. nephrectomy with tumor thrombectomy and intraoperative IVC filter placement.
E. nephrectomy with tumor thrombectomy and IVC ligation.
ANSWER=E
The patient has a right renal mass with tumor thrombus extending into the suprarenal IVC and bland thrombus (composed likely primarily of platelets and not malignant tissue) in the infrarenal IVC. Tumor thrombus can often (as here) be distinguished from bland thrombus on contrast MRI by the presence of enhancement. The bland thrombus appears to be completely occluding the IVC, consistent with the patient's history of lower extremity enema. In the setting of bland thrombus, particularly with complete IVC occlusion, systemic anticoagulation is often initiated to prevent further clot extension or embolization and to maintain the patency of collateral vessels. Optimal management of these patients, particular without clear evidence of significant metastatic disease, is with surgical resection. Surgical resection entails nephrectomy with tumor thrombectomy. In addition, for patients with complete occlusion of the infrarenal IVC from bland thrombus, IVC ligation may prevent thrombus extension and embolization postoperatively. Indeed, IVC ligation has been demonstrated to be well tolerated in this setting, as collaterals have developed from the state of complete occlusion. While intraoperative IVC filter placement in the infrarenal IVC has been described for patients following nephrectomy with tumor thrombectomy who have a patent IVC and non-contiguous bland thrombus in the iliac or femoral vessels, such an approach would not be recommended, or likely feasible, in a patient with bulky, occlusive infrarenal IVC clot. Renal artery angioembolization is typically utilized for palliation in patients with symptomatic large renal tumors who are not candidates for surgical resection. While angioembolization may be used preoperatively as well in select circumstances, robust evidence supporting an improvement in perioperative outcomes with this approach is lacking. Importantly, moreover, percutaneous IVC filter placement is not recommended in the setting of a tumor thrombus, as in fact the thrombus may infiltrate into the tines of the filter and significantly complicate surgical resection. While cabozantinib as well as the combination of ipilimumab and nivolumab represent systemic therapy options for patients with metastatic RCC, the bulk of evidence supporting a benefit to treatment with either of the regimens is for patients with predominantly clear cell RCC, and specifically for patients with intermediate or poor risk metastatic disease. This patient: (a) has a non-clear cell histology, (b) would likely be characterized as having favorable risk disease if metastatic, but moreover (c) does not definitively have metastatic disease, as the noted pulmonary nodules are indeterminate based on size/number, and indeed frequently such radiographic findings do not represent metastases.

137. A 19-year-old Black man with sickle cell disease and stuttering priapism has a painful erection that has lasted five hours. Cavernosal blood gas shows PO2 24 mmHg, PCO2 67 mmHg, and pH 7.22. The next step is:
A. I.V. hydration.
B. exchange transfusion.
C. daily low dose sildenafil.
D. cavernous aspiration and phenylephrine injection.
E. corporoglanular shunt.
ANSWER=D
The clinical scenario presented is consistent with ischemic priapism. Sickle cell trait and disease are most common in people whose genetic ancestry is from locations with a historically large malaria burden such as Sub-Saharan Africa, South and Central America, India, and some Mediterranean countries. When ischemic priapism is associated with sickle cell disease (SCD), effective management requires intracavernous treatment similar to non-SCD cases. Concurrent systemic therapies such as oxygen, hydration, and exchange transfusion may be provided by the hematology-oncology team but should not replace therapies directed at the penis as the latter provide the best results for resolution of the acute symptoms. Low dose daily sildenafil has been shown to decrease recurring episodes in stuttering priapism but is not a treatment for the acute setting. Surgical shunts should only be tried if aspiration and alpha-adrenergic drug injections fail.

138. A 60-year-old woman has urothelial carcinoma with sarcomatoid differentiation invading the lamina propria and adjacent CIS on TURBT. Metastatic evaluation is negative and laboratory studies are normal. The next step is:
A. BCG.
B. dose-dense M-VAC.
C. pembrolizumab.
D. radical cystectomy.
E. XRT with radiosensitizing chemotherapy.
ANSWER=D
This patient would be classified by the AUA/SUO non-muscle invasive bladder cancer (NMIBC) guidelines as high-risk based on high-grade T1 (lamina propria invasion) pathology. Further, the patient has the additional adverse risk factor of variant histology (sarcomatoid differentiation). The presence of variant histology at TURBT has been associated with high rates of upstaging and locally advanced disease at cystectomy. As such, the AUA/SUO Guidelines state that clinicians should consider

offering patients with T1 disease and variant histologies radical cystectomy. In light of these factors, cystectomy would be the preferred management strategy here. Intravesical BCG is utilized as a first-line therapy for patients with high risk NMIBC; however, if BCG were to be utilized, repeat TURBT should be performed prior to BCG given the risk of upstaging (i.e., to muscle-invasive disease) for patients with high-grade T1 disease. While repeat TURBT is recommended by the AUA Guidelines for patients with high-grade T1 bladder cancer, in the case here, given the lack of current data supporting a role for neoadjuvant chemotherapy for patients with sarcomatoid differentiation from urothelial carcinoma (i.e., if muscle-invasive disease was found at repeat TURBT), as well as the lack of data on the efficacy of BCG for patients with sarcomatoid urothelial carcinoma, proceeding next with radical cystectomy would be appropriate, particularly in light of the relatively young age of the patient. Dose-dense M-VAC represents a preferred neoadjuvant chemotherapy regimen for patients with muscle-invasive urothelial carcinoma but is not indicated at this time for patients with NMIBC. Further, limited data exist to support the responsiveness of tumors with sarcomatoid differentiation to M VAC. Similarly, pembrolizumab was approved by the FDA in January of 2020 for the treatment of BCG-unresponsive CIS, with or without concurrent papillary disease, in patients unwilling/unable to undergo radical cystectomy. However, pembrolizumab is not approved for usage in the BCG-naïve setting as this patient represents. Likewise, limited data exist to date on the use of chemotherapy + XRT for NMIBC, and indeed chemotherapy with XRT is not recommended for NMIBC by current AUA Guidelines. While trimodal therapy (TURBT + chemotherapy + XRT) represents an option for the management of patients with muscle invasive disease, evidence supporting its efficacy in sarcomatoid urothelial carcinoma is scant, and as such, proceeding with radical cystectomy, rather than repeat TURBT, is appropriate, again particularly given the patient's age.

139. A 23-year-old woman who is 35 weeks pregnant requires placement of a left ureteral stent for a symptomatic stone. During positioning in lithotomy, her blood pressure abruptly drops from 120/70 mmHg to 80/50 mmHg, her heart rate remains 80 bpm, and temperature is 37.4 ° C. The next step is I.V. hydration and:

A. proceed with stent insertion.
B. abort procedure and start broad spectrum antibiotics.
C. place her in Trendelenburg and proceed with stent insertion.
D. place a wedge under her right side and proceed with stent insertion.
E. abort procedure and left PCNT placement.
ANSWER=D

This patient is exhibiting signs of “supine hypotensive syndrome.” In the pregnant patient, cardiac output is position-dependent, and can drop by as much as 30% when supine. The gravid uterus can compress the IVC and cause a decrease in venous return. Additionally, the typical sympathetic response that would lead to an increase in vascular resistance is blocked by general or regional anesthesia, further reducing cardiac output. This can be avoided by placing a wedge under the right side of the patient to displace the uterus toward the patient's left side, thereby reducing IVC compression. Aggressive fluid hydration is indicated; however, that may not correct her hypotension if the poor venous return is not improved. Providing broad spectrum antibiotics is appropriate if it is thought that her hypotension is secondary to sepsis; however, she remains afebrile, and hypotension occurred with the positional change into lithotomy. Her heart rate does not increase because the sympathetic response is blocked by anesthesia. Placing her in Trendelenburg will only worsen the scenario as it will place more pressure on the IVC and elevate the diaphragm, further reducing functional residual capacity and oxygenation. Placing a PCNT would require her to be in the right lateral decubitus position, displacing the uterus to the right and further compressing the IVC; however, PCNT placement may be indicated if stent insertion is unsuccessful.

140. A 31-year-old transgender woman has abdominal pain and fever three days after robotic vaginoplasty. Labial cellulitis and wound break down are present. The next step is antibiotics and:

A. moist to dry dressing changes.
B. VCUG.
C. barium enema.
D. colposcopy.
E. CT scan with contrast.
ANSWER=E

While local wound care to her labia is warranted, evaluating her abdominal pain is more pressing. She may have a rectovaginal fistula or bowel injury. CT scan with contrast will allow for complete abdominal evaluation. VCUG can help detect a urethrovaginal fistula but will not diagnose the cause of the abdominal pain. Barium enema stages the rectum and colon but not the small bowel. Colposcopy may show rectovaginal fistula but would not be the first choice.

141. Decreased kidney size is seen in follow-up duplex Doppler ultrasound of a 52-year-old woman with right renal artery medial fibroplasia. Her blood pressure is well controlled, and she is otherwise asymptomatic. The next step is:

A. observation.
B. low-dose ACE inhibitor.
C. balloon angioplasty.
D. percutaneous transluminal renal artery stent.
E. surgical revascularization.
ANSWER=C

Patients with renal artery fibromuscular dysplasia (FMD) should be monitored for the development of hypertension. Most patients are asymptomatic, and the diagnosis is an incidental finding on imaging studies. Ischemic nephropathy is not a sequela of FMD. There is no role for ACE inhibitors in this patient since blood pressure is well-controlled and preservation of renal function is not a consideration in the treatment of FMD. Percutaneous transluminal renal angioplasty (PTRA) provides immediate and long-term blood pressure control in nearly 75% of patients and should be offered to young, otherwise healthy patients in whom FMD is diagnosed prior to the onset of hypertension. When hypertension has been a chronic condition, anti-hypertensive medications can be continued as long as blood pressure control is satisfactory. Yearly or twice per year, Doppler ultrasonography based surveillance of kidney length and cortical thickness should be performed. PTRA should be performed for refractory hypertension, intolerable medication side-effects, or renal size or functional decrease. It has been shown that balloon angioplasty alone is a very effective treatment for renal artery FMD, and stent placement does not confer clinically relevant benefits. The latter may be offered when there is an inability to eliminate a pressure gradient with angioplasty alone or for intimal dissection. Patients with aneurysms or FMD involving distal extrarenal branches may be candidates for surgical revascularization.

142. A 74-year-old man with an orthotopic ileal neobladder (Studer pouch) has had three febrile UTIs in the last six months. PVR is 30 mL and his creatinine has risen to 2.1 mg/dL. Cystogram and MRI scan are shown. The next step is:

“Images not available from the source”

A. CIC.
B. gentamicin irrigation.
C. bilateral PCNTs.
D. bilateral ureteral reimplantation.
E. conversion to ileal conduit.

ANSWER=C
The Studer pouch is constructed with a U-shaped reservoir and an afferent isoperistaltic tubular segment, or limb, into which the ureters are reimplanted. The imaging here is consistent with afferent limb stenosis, as there is a cut-point of reflux in the afferent limb noted on the cystogram, while images from the MRI scan demonstrate hydronephrosis and an hourglass deformity of the neobladder. While rare, this is thought to occur due to fibrosis of the midpoint of the ileal segment comprising the afferent limb. Stenosis of the limb, in turn, may cause urinary obstruction, leading to hydronephrosis and renal function deterioration, as well as urinary stasis, predisposing patients to infection. Definitive management would require replacement of the afferent limb. At this time, however, renal drainage should be established with bilateral PCNTs. This allows an assessment of subsequent renal function recovery with such drainage and to interrogate the ureteroileal anastomosis, as patency cannot be assured from the imaging provided and bilateral ureteroanastomotic strictures should be ruled out with antegrade nephrostograms once PCNTs are placed. CIC would not address the lack of drainage from the afferent limb, and in particular would not be indicated here with the patient's low PVR. Similarly, gentamicin irrigation of the neobladder would not correct the likely predisposing factor to the patient's UTIs - urinary stasis from stenosis of the afferent limb. Ureteral reimplantation may be required if ureteroenteric anastomotic strictures are diagnosed; however, the evaluation provided in the question here does not include assessment of the ureteroenteric anastomoses, and therefore, reimplantation should not be undertaken until further investigation (i.e., antegrade nephrostograms after PCNT insertion) is conducted. Likewise, establishing renal drainage and assessing renal function response after relief of obstruction should be performed prior to consideration of conversion of the neobladder to an ileal conduit. Moreover, the existing, stenotic afferent limb should not be converted to a conduit, but rather a new segment of bowel would be required.

143. A 31-year-old man has a left radical orchiectomy for a 4cm pT1 NSGCT. Postoperative serum tumor markers and chest x-ray are normal. CT scan shows a 1.1 cm paraaortic lymph node. The next step is:
A. repeat CT scan in six to eight weeks.
B. FDG-PET/CT scan.
C. percutaneous lymph node biopsy.
D. chemotherapy.
E. XRT.
ANSWER=A
Many patients with newly diagnosed germ cell tumors have equivocal imaging findings, not clearly consistent with localized or metastatic disease. Most often, this manifests as the presence of borderline enlargement (0.8 to 1.5 cm) of lymph nodes in the retroperitoneum, sometimes lateralizing to the expected landing zone. In the absence of elevated tumor markers, these findings should be approached cautiously rather than hastily initiating treatment for metastatic disease. Repeating imaging six to eight weeks after the initial CT can be helpful in establishing the probable etiology. Enlarging lymph nodes are often associated with metastatic disease, while stable or regressing lymph nodes suggest benign etiologies. Such a practice, as employed by the Swedish Norwegian Testicular Cancer (SWENOTECA) group, helps avoid overtreatment with resultant potential for unnecessary toxicity. Up to half of patients with clinical stage 2A NSGCT at diagnosis have false-positive nodes and therefore are pathologic stage 1. PET/CT scan is not indicated in patients with NSGCT given the lack of differentiation between teratoma and viable germ cell tumor. Biopsy of small retroperitoneal nodes can yield false negative results, is technically challenging, and is not standard of care in previously untreated patients. To avoid potential over-treatment, chemotherapy should not be done immediately as tumor markers are normal and the patient has a small retroperitoneal lymph node of uncertain significance in the pT1 setting. XRT is not indicated in any patient with NSGCT.

144. A 26-year-old Black man with weight loss and right flank pain has a 6 cm renal mass with retroperitoneal lymphadenopathy as well as a 1 cm lung nodule. Eastern Cooperative Oncology Group (ECOG) performance status is 2 and hemoglobin is 9.1 g/dL. Biopsy demonstrates renal medullary carcinoma. The next step is:
A. ipilimumab and nivolumab.
B. gemcitabine and Adriamycin®.
C. carboplatin and paclitaxel.
D. nephrectomy with RPLND.
E. nephrectomy, RPLND, and pulmonary metastasectomy.
ANSWER=C
Renal medullary carcinoma (RMC) is a highly aggressive malignancy arising from the collecting duct epithelium of the kidney. Patients generally have sickle cell trait, which is more common in those with genetic ancestry from Africa, India, the Mediterranean, the Middle East, and other geographical areas with a historically high malaria disease burden. Tumors are generally endophytic, central, and infiltrative. The regimen of carboplatin and paclitaxel is the preferred first-line therapy for patients with metastatic RMC, while gemcitabine and Adriamycin® are reserved for second line RMC therapy. Ipilimumab and nivolumab is one of the first-line therapies for metastatic clear cell RCC. Importantly, surgical resection, either with cytoreductive nephrectomy and RPLND or cytoreductive nephrectomy, RPLND, and metastasectomy, should not be done in patients with metastatic RMC and an ECOG performance status of 2. After multidisciplinary discussion, surgery in a deferred fashion may be considered depending on the patient's response to initial systemic therapy.

145. Despite a trial of antimuscarinics, a 48-year-old woman has urinary incontinence three months after a urethral diverticulectomy. Exam reveals a positive cough stress test and pooling of urine in the vaginal vault. Her PVR is 35 Ml and urinalysis is negative. The next step is:
A. cystoscopy.
B. cystoscopy with retrograde pyelograms.
C. urethral catheter.
D. midurethral sling.
E. autologous fascial sling.
ANSWER=A
Pooling of fluid in the vaginal vault should raise suspicion of a fistula. This patient needs to be evaluated with a cystoscopy for a potential urethrovaginal fistula following her diverticulectomy. A urethral catheter may help in early postoperative recovery, but three months postoperatively would not be helpful due to epithelialization of the fistula tract. Upper tract evaluation is necessary when evaluating a VVF but is not typically necessary with urethrovaginal fistulas. If a urethrovaginal fistula is diagnosed, a fascial sling may be considered at the time of fistula repair to treat her SUI. A midurethral sling should not be done at the time of fistula repair given the risk of erosion in the setting of urethral reconstruction; however, a midurethral sling would be an option if this is just SUI and there is no fistula.

146. Three weeks following robotic prostatectomy and pelvic lymphadenectomy, a 58-year-old man develops unilateral leg swelling and is diagnosed with an acute deep vein thrombosis (DVT). Vital signs are normal. Apixaban is started. There is no family history of DVT. Subsequent management should include:
A. chest CT scan.
B. pelvic CT scan.
C. conversion to coumadin.
D. at least one year of anticoagulation.
E. evaluation for hypercoagulability.

ANSWER=B
Following prostatectomy and lymphadenectomy, unilateral DVT (deep vein thrombosis) after surgery should prompt imaging of the pelvis to rule out pelvic collections such as lymphocele or abscess which can lead to venous outflow obstruction and DVT. For example, in a randomized trial of 500 men evaluating DVT prophylaxis prior to prostatectomy (PREVENTER), of which 84% also underwent lymphadenectomy, all ten patients with thromboembolic events occurred in those having lymphadenectomy. Without respiratory symptoms and normal vital signs, chest imaging to rule-out pulmonary embolism (PE) is not required. For patients with uncomplicated DVT, the American Society of Hematology (ASH) guideline panel suggests offering home treatment over hospital treatment and using direct oral anticoagulants (DOACs) over Vitamin K antagonists (VKAs). For primary treatment of patients with DVT and/or PE, whether provoked by a transient risk factor, by a chronic risk factor, or unprovoked, the ASH guideline suggests using a shorter course (3-6 months) over a longer course (6-12 months) of anticoagulation for primary treatment. If this was a recurrent or unprovoked DVT or if there was a family history of DVT/PE, hypercoagulability work-up should be considered.

147. A 19-year-old woman with G6PD deficiency and stage 3 CKD has an afebrile UTI. The best antibiotic choice is:
A. ceftriaxone.
B. fosfomycin.
C. ciprofloxacin.
D. nitrofurantoin.
E. trimethoprim/sulfamethoxazole.
ANSWER=B
G6PD deficiency is more common in individuals with African or Mediterranean ancestry. First-line therapy for treatment of outpatient cystitis in non-pregnant women includes nitrofurantoin, trimethoprim/sulfamethoxazole (TMP-SMX), and fosfomycin. Both nitrofurantoin and TMP-SMX are contraindicated in significant renal insufficiency and in G6PD deficiency. Fosfomycin is not contraindicated in these individuals. Fluoroquinolones such as ciprofloxacin are second-line therapy for treatment of outpatient cystitis in non-pregnant women. Ceftriaxone would treat the infection, but an I.V. antibiotic is not necessary for an afebrile UTI.

148. A 51-year-old man with long-standing LUTS develops gross hematuria. CT scan is shown. Cystoscopic biopsy of the mass reveals squamous Cell carcinoma and other bladder biopsies are negative. Metastatic evaluation is negative. He prioritizes sexual function. The next step is:

"Images not available from the source"

A. complete endoscopic resection.
B. chemotherapy and XRT.
C. neoadjuvant gemcitabine and cisplatin.
D. partial cystectomy.
E. nerve sparing radical cystectomy.
ANSWER=D
The patient has a squamous cell carcinoma (SCC) within a bladder diverticulum. The mouth of the diverticulum arises from the right posterior bladder, and the tumor appears confined to the bladder with preserved perivesical fat planes. Bladder SCC represent about 3-7% of tumors in the U.S. and in this case, is likely associated with urinary stasis and chronic inflammation rather than bilharzial infection. Complete endoscopic resection is likely not feasible given the location within a diverticulum. The outcome of pure bladder SCC is often poor, given the advanced disease at the time of presentation. There is no evidence that neoadjuvant chemotherapy regimens used for urothelial carcinoma are effective with SCC. Likewise, trimodal therapy with chemotherapy and XRT would not be advised given this patient's LUTS and location of tumor within the diverticulum. In this case, the best treatment is partial cystectomy to excise the bladder diverticulum which would serve to eradicate his tumor, possibly improve his LUTS, and afford him the best opportunity to maintain his sexual function (as compared to nerve-sparing radical cystectomy).

149. A 39-year-old pre-menopausal woman has had five years of distressing, unwanted clitoral arousal that bring her to the verge of orgasm, occasionally resulting in spontaneous orgasms. Hormone blood tests are normal and physical exam reveals no evidence of clitoral engorgement. The next step is:
A. neurologic testing.
B. daily pseudoephedrine.
C. pudendal nerve neuromodulation.
D. vestibulectomy.
E. lysis of clitoral adhesions.
ANSWER=A
Characteristics of persistent genital arousal disorder (PGAD) include persistent or recurrent, unwanted, distressing feelings of genital arousal or being on the verge of orgasm (genital dysesthesia), that are not associated with concomitant sexual interest, thoughts, or fantasies. This disorder is often associated with shame or even suicidal thoughts/behavior for having these persistent and bothersome feelings and may result in limited resolution, no resolution, or aggravation of symptoms by sexual activity with or without aversive and/or compromised orgasm, aggravation of genital symptoms by certain circumstances, despair, emotional lability, catastrophization and/or suicidality and inconsistent evidence of genital arousal during symptoms. Risk factors include psychiatric and psychological-related pathophysiologies and there are reports that stress worsens PGAD symptoms. Conversely, distraction and relaxation strategies lessen PGAD symptoms. Other associated etiologies include vascular, neurologic, pharmacologic, and hormonal problems. Both arterial (pelvic arterio-venous malformations with unregulated arterial communications to the genitalia) and venous (pelvic congestion syndrome with ovarian venous incompetence and large varices draining the genitalia) vascular causes may lead to PGAD. Central neurologic causes such as Tourette's Syndrome, epilepsy, post-blunt CNS trauma, post-neurosurgical intervention for arteriovenous malformation, and cervical and lumbosacral surgical interventions may also lead to PGAD. Peripheral neurologic causes of PGAD include pudendal nerve entrapment and hypersensitivity or small fiber neuropathy of the pudendal nerve including its dorsal branch to the clitoris. Certain antidepressants (i.e., trazodone) or sudden withdrawal of selective serotonin re-uptake inhibitors (SSRIs), as occurs in SSRI discontinuation syndrome, have also been implicated as causative factors. In post-menopausal women, initiation and discontinuation of hormone therapy may lead to PGAD. Despite these known risk factors and etiologies, many cases are attributed to idiopathic causes. Identification of potential peripheral neurologic lesions such as pudendal nerve entrapment or lumbar sacral pathology in a focused physical examination is critical in women suspected of having PGAD. This patient should therefore undergo vulvoscopy and neurologic testing. Work-up should also include a detailed history, psychological evaluation, and laboratory testing. Initiation and discontinuation of hormone therapy in post-menopausal women has been associated with onset of PGAD. Clitoral ultrasound studies may be used to diagnose arterial vascular causes secondary to pelvic arterio-venous malformations leading to unregulated arterial communications to the genitalia. Pelvic ultrasound and transvaginal ultrasound may be used to exclude venous vascular causes secondary to pelvic congestion syndrome with ovarian venous incompetence and large varices draining the genitalia. Neurologic consultation, EEG, and CT and MRI scans may be indicated if there is concern about central neurologic causes such as those detailed above. There is no evidence that this patient has clitoral adhesions or that daily

pseudoephedrine will be helpful in resolving PGAD. Pudendal nerve neuromodulation and vestibulectomy are not helpful in treating PGAD.

150. A 52-year-old man with a C5 spinal cord injury has managed his bladder with a sphincterotomy and condom catheter for 15 years. He has recently developed recurrent UTIs. Ultrasound shows normal appearing kidneys with a distended bladder. The next step is:

A. tamsulosin.
B. antibiotic prophylaxis.
C. TRUS.
D. UDS.
E. suprapubic tube insertion.

ANSWER=D

Utilization of a condom catheter is ideal for a man who is unable to perform CIC and has low pressure detrusor overactivity. This should put the upper tracts at minimal risk. The goal is bladder emptying with low storage and emptying pressures. In patients with detrusor sphincter dyssynergia, the upper tracts can be protected by external sphincterotomy and aggressive TURP. These combined procedures create an incompetent outlet, allowing the patient to reflexively void into the condom catheter. Unfortunately, over time there can be prostatic and sphincter regrowth, stricture formation, or loss of detrusor contractility resulting in high pressure voiding and/or incomplete emptying. As a result, UDS should be done first in this patient who may not be emptying to completion. Tamsulosin or another alpha-blocker may be helpful if prostatic regrowth is identified. While TRUS can evaluate for prostate size, the primary concern is related to incomplete emptying secondary to obstruction or suboptimal detrusor contractility and UDS would be the next step. A suprapubic tube is also an option; however, if the outlet remains minimally incompetent, the patient may experience incontinence per urethra even with the suprapubic tube in place. Antibiotic prophylaxis should be avoided to prevent bacterial resistance, especially prior to evaluating his bladder function.